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MISSILE SYSTEMS MAINTENANCE SPECIALIST AFSC 31651/1F/1P.(U)
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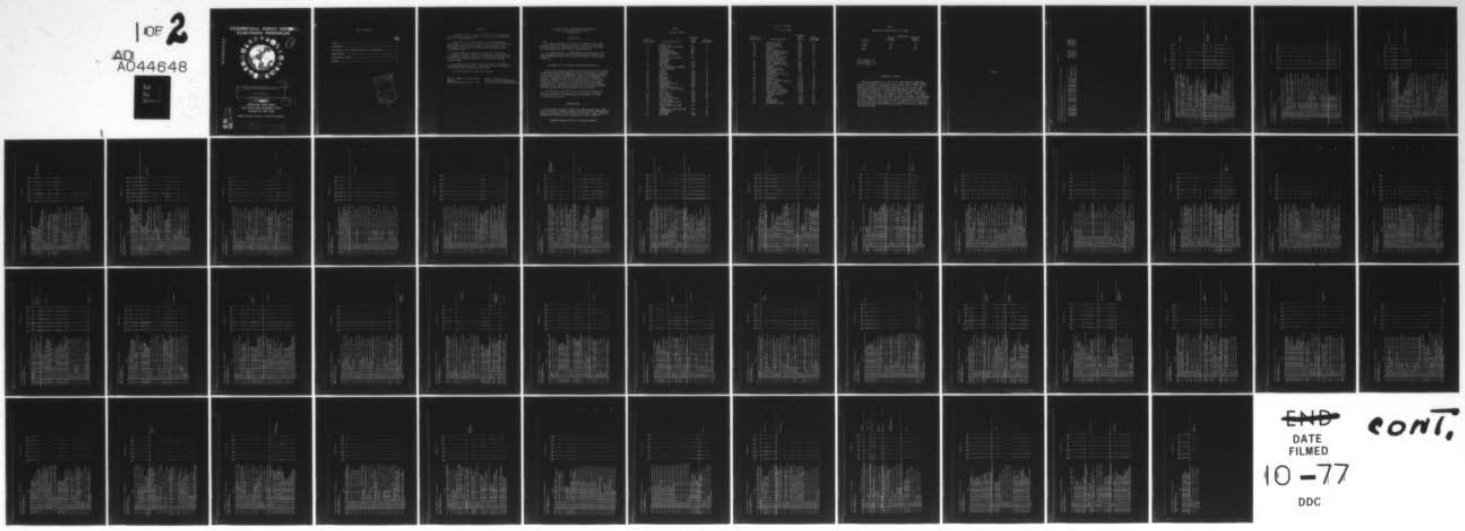

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OCCUPATIONAL SURVEY REPORT
ELECTRONIC PRINCIPLES

MISSILE SYSTEMS MAINTENANCE SPECIALIST

AFSC 31651/1F/1P

AFPT-90-316-222
14 Sep 1977

OCCUPATIONAL SURVEY BRANCH
USAF OCCUPATIONAL MEASUREMENT CENTER
LACKLAND AFB TEXAS 78236

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PREFACE

This report presents a summary of the results of a detailed Air Force Electronic Principles Survey of the Missile Systems Maintenance Specialist, AFSC 36151/1F/1P.

The Electronic Principles Inventory (EPI) was developed by Major Thomas J. O'Connor and Mr. Hendrick W. Ruck and the survey data were analyzed by Mr. Harry G. Lawrence. All are members of the Occupational Survey Branch, USAF Occupational Measurement Center, Lackland AFB, Texas.

Computer programs for analyzing the data were designed by Dr. Raymond E. Christal, Occupational and Manpower Research Division, Air Force Human Resources Laboratory (AFHRL), and were written by the Project Analysis and Programming Branch, Computational Sciences Division, AFHRL.

Distribution of this report is made upon request to the USAF Occupational Measurement Center, attention of the Chief, Occupational Survey Branch (OMY), Lackland AFB, Texas 78236.

This report has been reviewed and is approved.

JAMES A. TURNER, JR., Colonel, USAF
Commander
USAF Occupational Measurement Center

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Chief, Occupational Survey Branch
USAF Occupational Measurement Center

ELECTRONIC PRINCIPLES OCCUPATIONAL SURVEY REPORT
MISSILE SYSTEM MAINTENANCE SPECIALISTS
AFSC 36151/1F/1P

INTRODUCTION

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Missile Systems Maintenance Specialists (AFSC 36151/1F/1P). The data for this report were collected during the period April through June 1977.

This report describes: (1) development and administration of the survey instrument; and (2) electronic principles used by DAFSC 5-skill level personnel both CONUS and overseas and assigned to selected major commands.

DEVELOPMENT OF THE ELECTRONIC PRINCIPLES INVENTORY (EPI)

The EPI was developed by personnel from the Occupational Survey Branch who were well qualified in theoretical physics and electronics, as well as in task analysis and survey development. Over 300 maintenance personnel from SAC, TAC, ADC, MAC, and AFCS participated in the development of the inventory. Representing the five ATC training centers, electronics experts who averaged 12 years of maintenance experience and four years of electronic principles instruction experience spent several weeks refining the EPI. In addition, personnel at the Electrical Engineering Department of the USAF Academy and the Air Force Human Resources Laboratory were consulted during the development of the inventory.

The final version of the EPI used in this survey contained 1,257 items in 62 subject matter areas covering all electronic principles training given at the five ATC technical training centers. Table 1 lists the 62 subject areas.

ADMINISTRATION

The Electronic Principles Inventory was administered by mail to AFSC 31651/1F/1P airmen worldwide. Responses from 49 individuals represented 69 percent of the total of all AFSC 31651/1F/1P personnel. Table 2 shows the percentage distribution by major command of the survey incumbents.

TABLE 1

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
1	MATHEMATICS	A1	2
2	DIRECT CURRENT AND VOLTAGE	A15	2
3	RESISTANCE	A24	2
4	MULTIMETER USES	B52	3
5	ALTERNATING CURRENT	B61	4
6	INDUCTORS AND INDUCTIVE REACTANCE	B67	4
7	CAPACITORS AND CAPACITIVE REACTANCE	C92	5
8	TRANSFORMERS	C128	6
9	MAGNETISM	C171	7
10	RCL CIRCUITS	D185	8
11	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)	D229	10
12	FILTERS	D239	10
13	COUPLING	E261	11
14	SOLDERING	E273	11
15	RELAYS	E295	12
16	MICROPHONES	F314	12
17	SPEAKERS	F327	13
18	OSCILLOSCOPES	F342	13
19	SEMICONDUCTOR DIODES	G354	13
20	TRANSISTORS	G404	15
21	TRANSISTOR AMPLIFIERS	G428	16
22	SOLID-STATE SPECIAL PURPOSE DEVICES	H477	19
23	POWER SUPPLIES	H483	19
24	OSCILLATORS	H512	19
25	MULTIVIBRATORS	I539	20
26	LIMITERS AND CLAMPERS	I555	21
27	ELECTRON TUBES	I565	21
28	ELECTRON TUBE AMPLIFIERS AND CIRCUITS	J609	22
29	SPECIAL PURPOSE ELECTRON TUBES	J616	23
30	HETERODYNING, MODULATION, AND DEMODULATION	J632	23
31	AM SYSTEMS	K638	23
32	FM SYSTEMS	K666	24

TABLE 1 (CONTINUED)

EPI SUBJECT AREAS

SEQUENCE OF SUBJECT AREAS	SUBJECT AREA TITLE	BEGINNING ITEM NUMBER	GPSUM PAGE NUMBER
33	NUMBERING SYSTEMS	K685	25
34	LOGIC FUNCTIONS	L695	25
35	BOOLEAN EQUATIONS	L708	26
36	COUNTERS	L733	27
37	TIMING CIRCUITS	M757	27
38	USE OF SIGNAL GENERATORS	M769	28
39	MOTORS AND GENERATORS	M779	28
40	METER MOVEMENTS	N808	29
41	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS	N818	29
42	WAVESHAPING CIRCUITS	N834	30
43	SINGLE SIDEBAND SYSTEMS	O845	30
44	PULSE MODULATION SYSTEMS	O875	31
45	ANTENNAS	O914	32
46	TRANSMISSION LINES	P953	34
47	WAVEGUIDES AND CAVITY RESONATORS	P984	35
48	MICROWAVE AMPLIFIERS AND OSCILLATORS	P1034	37
49	REGISTERS	Q1110	39
50	STORAGE DEVICES	Q1117	40
51	DIGITAL TO ANALOG CONVERTERS	Q1126	40
52	PHANTASTRONS	Q1140	41
53	SCHMITT TRIGGERS	R1141	41
54	CABLE FABRICATION	R1144	41
55	INPUT/OUTPUT DEVICES	S1146	41
56	PHOTO SENSITIVE DEVICES	S1149	41
57	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)	S1150	41
58	INFRARED	T1159	41
59	LASERS	T1186	42
60	DISPLAY TUBES	T1220	43
61	PROGRAMMING	U1234	43
62	DB AND POWER RATIOS	U1255	44

TABLE 2

SHREDOUT REPRESENTATION OF SURVEY SAMPLE

	36151/1F/1P	
SHREDOUT	PERCENT ASSIGNED	PERCENT OF SAMPLE
31651F	42	33
31651P	58	61
TOTAL	100	100

Total Assigned - 77
Total Sampled - 49
Percent Sampled - 64%

PRESENTATON OF RESULTS

Personnel responded "yes" or "no" to the 1,257 electronic principles questions as related to their present job. A Group Summary (GPSUM) computer printout is provided in the Appendix portion of this report. Page 1 of the GPSUM lists the seven selected groups identified for this report. Pages 2-44 show the percentage of the incumbents responding to the EPI items. The computer program results display the percent members answering "yes" to the subject area questions. The reader can locate a specific subject area by referring to the Appendix page number as listed in Table 1. For example, the Transformers area results are given on page 6 of the GPSUM. The percentage of survey respondents indicating use of specific electronic principles ranged from high in areas such as Resistance (pp. 2-3) and Multimeter Uses (p. 3) to low in areas such as Microphones (p. 12) and Speakers (p. 13). Additional AFSC 361X1/1F/1P data can be obtained upon request to the Chief, Occupational Survey Branch (OMY).

APPENDIX

TABULATION OF ELECTRONIC PRINCIPLES UTILIZATION DATA FOR SELECTED GROUPS
IN THE 31651/1F/1L/1P CAREER FIELD.

REPORTS ON THE FOLLOWING GROUPS WERE REQUESTED

GROUP IDENTITY = SPC026	ALL AIRMEN DAFSC 31651/1F/1L/1P/1G	CONTAINING	49 MEMBERS.
GROUP IDENTITY = SPC027	ALL AIRMEN DAFSC 31651F	CONTAINING	10 MEMBERS.
GROUP IDENTITY = SPC028	ALL AIRMEN DAFSC 31651F ASSIGNED TO ATC	CONTAINING	3 MEMBERS.
GROUP IDENTITY = SPC029	ALL AIRMEN DAFSC 31651F ASSIGNED TO SAC	CONTAINING	13 MEMBERS.
GROUP IDENTITY = SPC037	ALL AIRMEN DAFSC 31651P	CONTAINING	33 MEMBERS.
GROUP IDENTITY = SPC038	ALL AIRMEN DAFSC 31651P ASSIGNED TO ADC	CONTAINING	3 MEMBERS.
GROUP IDENTITY = SPC039	ALL AIRMEN DAFSC 31651P ASSIGNED TO TAC	CONTAINING	20 MEMBERS.

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC D26	SPC D27	SPC D28	SPC D29	SPC D37	SPC D38	SPC D39	
A	1	A1-01 IN YOUR PRESENT JOB, DO YOU USE INSTRUMENTS, SUCH AS METERS OR OSCILLOSCOPES, IN WHICH IT IS NECESSARY TO AMPLIFY OR ATTENUATE VOLTAGE, RESISTANCE, ETC., BY POWERS OF 10.	73	69	100	62	76	67	75	
A	2	A1-02 DO YOU USE PUBLICATIONS, SUCH AS A TECHNICAL ORDERS OR MAINTENANCE MANUALS, IN WHICH IT IS NECESSARY FOR YOU TO MULTIPLY OR DIVIDE BY A POWER OF 10 BEFORE YOU CAN APPLY THE INFORMATION FROM THE PUBLICATION IN A USEFUL WAY ON THE JOB.	49	56	33	62	45	67	45	MATHEMATICS
A	3	A1-03 DO YOU REARRANGE AND SOLVE FORMULAS OR EQUATIONS.	55	81	100	77	42	67	35	
A	4	A1-04 DO YOU CALCULATE THE SQUARE ROOT OF A QUANTITY.	12	19	100	0	9	0	0	
A	5	A1-05 DO YOU SOLVE FOR UNKNOWN QUANTITIES.	29	44	100	31	21	0	15	
A	6	A1-06 DO YOU CONVERT NUMBERS TO LOGARITHMS.	6	13	67	0	3	0	5	
A	7	A1-07 DO YOU USE LOGARITHM TABLES IN ANY TYPE OF CALCULATIONS.	6	13	67	0	3	0	0	
A	8	A1-08 DO YOU SOLVE QUADRATIC EQUATIONS.	10	6	33	0	12	0	0	
A	9	A1-09 DO YOU USE THE NATURAL SYSTEM OF LOGARITHMS.	2	0	0	0	3	0	0	
A	10	A1-10 DO YOU PERFORM CALCULATIONS ON VECTOR QUANTITIES.	10	13	67	0	9	0	0	
A	11	A1-11 DO YOU WORK WITH TRIGONOMETRIC FUNCTIONS SUCH AS SINE, COSINE, OR TANGENT.	18	31	67	23	12	0	5	
A	12	A1-12 DO YOU DETERMINE AREAS OF PLANE FIGURES.	12	19	67	8	9	0	5	
A	13	A1-13 DO YOU SOLVE OR USE SIMULTANEOUS EQUATIONS.	6	0	0	0	9	0	0	
A	14	A1-14 DO YOU SOLVE OR USE PROPORTIONS.	14	19	67	8	12	0	10	
A	15	A2-01 DO YOU USE THE TERM VOLTAGE OR VOLT (V).	98	100	100	100	97	100	100	
A	16	A2-02 DO YOU USE THE TERM ELECTROMOTIVE FORCE (EMF).	22	38	100	23	15	67	15	
A	17	A2-03 DO YOU USE THE TERM OHM.	98	100	100	100	97	100	100	DIRECT CURRENT AND VOLTAGE
A	18	A2-04 DO YOU USE THE TERM ION.	10	19	100	0	6	0	5	
A	19	A2-05 DO YOU USE THE TERM DYNE.	10	19	100	0	6	0	10	
A	20	A2-06 DO YOU USE THE TERM AMPERE.	98	100	100	100	97	100	100	
A	21	A2-07 DO YOU USE THE TERM NEUTRON.	12	25	100	8	6	0	5	
A	22	A2-08 DO YOU USE THE TERM COULOMB.	12	25	100	8	6	0	5	
A	23	A2-09 DO YOU USE THE TERM PROTON.	10	19	100	0	6	0	5	
A	24	A3-01 DO YOU WORK WITH RESISTORS IN YOUR PRESENT JOB.	76	75	100	69	76	100	70	
A	25	A3-02 DO YOU INSPECT RESISTORS.	63	38	67	31	76	100	65	
A	26	A3-03 DO YOU CLEAN RESISTORS.	53	38	67	31	61	67	45	
A	27	A3-04 DO YOU ADJUST RESISTORS.	76	88	100	85	70	67	70	
A	28	A3-05 DO YOU CHECK OHMIC VALUE OF RESISTORS.	82	81	100	77	82	100	75	
A	29	A3-06 DO YOU REMOVE OR REPLACE RESISTORS.	63	50	100	38	70	100	55	
A	30	A3-07 DO YOU USE OR REFER TO TEMPERATURE COEFFICIENTS FOR RESISTORS ON ANY TASKS YOU PERFORM.	22	25	100	8	21	0	20	
A	31	A3-08 DO YOU USE OR REFER TO RESISTOR SYMBOLS SUCH AS FIXED RESISTOR SYMBOLS OR TAPPED RESISTOR SYMBOLS.	76	75	100	69	76	100	75	RESISTANCE
A	32	A3-09 DO YOU IDENTIFY OR CLASSIFY THE RESISTORS YOU WORK WITH AS CARBON, FIXED WIRE, SLIDE TAP, RHEOSTAT, OR POTENTIOMETER.	67	63	100	54	70	100	55	
A	33	A3-10 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE OHMIC VALUE OF RESISTANCE.	55	50	100	38	58	100	50	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
A	34	A3-11 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE TOLERANCE.	49	50	100	38	48	100	35	
A	35	A3-12 DO YOU USE RESISTOR COLOR CODES WHICH INDICATE FAILURE RATE.	8	0	0	0	12	0	15	
A	36	A3-13 DO YOU MAKE DECISIONS IN WHICH YOU MUST DETERMINE HOW TWO OR MORE BATTERIES MUST BE CONNECTED TOGETHER TO ACHIEVE A SPECIFIC VOLTAGE.	37	38	100	23	36	33	45	
A	37	A3-14 DO YOU USE OR REFER TO THE SCHEMATIC SYMBOLS WHICH REPRESENT BATTERIES, FUSES, CONDUCTORS, LAMPS, OR SWITCHES	80	88	100	85	76	100	70	
A	38	A3-15 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES RESISTIVE CIRCUITS.	33	50	100	38	24	67	20	
A	39	A3-16 DO YOU CALCULATE TOTAL CURRENT FOR SERIES RESISTIVE CIRCUITS.	29	44	100	31	21	67	15	
A	40	A3-17 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES RESISTIVE CIRCUITS.	33	69	100	62	15	67	5	
A	41	A3-18 DO YOU CALCULATE POWER DISSIPATION FOR SERIES RESISTIVE CIRCUITS.	31	56	100	46	18	67	5	
A	42	A3-19 DO YOU CALCULATE TOTAL RESISTANCE FOR SERIES PARALLEL RESISTIVE CIRCUITS.	27	38	100	23	21	67	15	
A	43	A3-20 DO YOU CALCULATE TOTAL CURRENT FOR SERIES PARALLEL RESISTIVE CIRCUITS.	24	31	100	15	21	67	25	
A	44	A3-21 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	29	56	100	46	15	67	5	
A	45	A3-22 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR SERIES PARALLEL RESISTIVE CIRCUITS.	22	38	100	23	15	67	5	
A	46	A3-23 DO YOU CALCULATE POWER DISSIPATION FOR SERIES PARALLEL RESISTIVE CIRCUITS.	27	44	100	31	18	67	5	
A	47	A3-24 DO YOU CALCULATE TOTAL RESISTANCE FOR PARALLEL RESISTIVE CIRCUITS.	27	38	100	23	21	67	15	
A	48	A3-25 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RESISTIVE CIRCUITS.	22	31	100	15	18	67	10	
A	49	A3-26 DO YOU CALCULATE INDIVIDUAL VOLTAGE DROPS FOR PARALLEL RESISTIVE CIRCUITS.	29	56	100	46	15	67	5	
A	50	A3-27 DO YOU CALCULATE INDIVIDUAL BRANCH CURRENTS FOR PARALLEL RESISTIVE CIRCUITS.	22	38	100	23	15	67	5	
A	51	A3-28 DO YOU CALCULATE POWER DISSIPATION FOR PARALLEL RESISTIVE CIRCUITS.	22	44	100	31	12	67	0	
B	52	B1-01 DO YOU MEASURE RESISTANCE.	94	100	100	100	91	100	90	
B	53	B1-02 DO YOU REPAIR OHMMETERS.	6	13	33	8	6	0	10	
B	54	B1-03 DO YOU MEASURE VOLTAGE.	96	100	100	100	94	100	95	
B	55	B1-04 DO YOU REPAIR VOLTMETERS.	8	13	33	8	6	0	10	
B	56	B1-05 DO YOU REPAIR AMMETERS.	6	13	33	8	3	0	5	
B	57	B1-06 DO YOU MEASURE CURRENT.	82	75	100	69	85	67	85	
B	58	B1-07 DO YOU USE MULTIMETERS.	96	100	100	100	94	100	95	MULTIMETER USES
B	59	B1-08 DO YOU DIRECTLY USE A QUANTITY OF CHARGE CALLED A COULOMB.	2	0	0	0	3	0	5	
B	60	B1-09 DO YOU READ SCHEMATICS.	94	94	100	92	94	100	95	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
B	61	B2-01 DO YOU USE OR REFER TO THE TERM EFFECTIVE VOLTAGE (RMS).	47	50	100	38	45	67	45	ALTERNATING CURRENT
B	62	B2-02 DO YOU USE OR REFER TO THE TERM PEAK TO PEAK VOLTAGE.	57	63	100	54	55	67	45	
B	63	B2-03 DO YOU USE OR REFER TO THE TERM AVERAGE VOLTAGE (DC).	59	50	100	38	64	100	55	
B	64	B2-04 DO YOU USE OR REFER TO THE TERM WAVE LENGTH.	51	50	100	46	48	67	50	
B	65	B2-05 DO YOU USE OR REFER TO THE TERM FREQUENCY.	92	100	100	100	88	100	90	
B	66	B2-06 DO YOU USE OR REFER TO THE TERM INSTANTANEOUS VALUE.	24	19	67	8	27	67	15	
B	67	B3-01 DO YOU WORK WITH INDUCTORS OR CIRCUITS CONTAINING INDUCTORS, CHOKES, OR CHOKE COILS IN YOUR PRESENT JOB.	20	25	100	8	18	67	10	
B	68	B3-02 DO YOU INSPECT INDUCTORS.	14	6	33	0	18	67	10	
B	69	B3-03 DO YOU CLEAN INDUCTORS.	12	6	33	0	15	67	10	
B	70	B3-04 DO YOU ADJUST INDUCTORS.	6	13	67	0	3	0	0	
B	71	B3-05 DO YOU REMOVE OR REPLACE INDUCTORS.	10	19	100	0	6	0	5	
B	72	B3-06 DO YOU USE OR REFER TO INDUCTANCE.	16	19	100	0	15	67	5	INDUCTORS AND INDUCTIVE REACTANCE
B	73	B3-07 DO YOU USE OR REFER TO HENRIES.	14	19	100	0	12	67	0	
B	74	B3-08 DO YOU USE OR REFER TO INDUCTIVE REACTANCE.	14	19	100	0	12	67	0	
B	75	B3-09 DO YOU USE OR REFER TO COPPER LOSS IN INDUCTORS.	6	13	67	0	3	0	0	
B	76	B3-10 DO YOU USE OR REFER TO HYSTERESIS LOSS IN INDUCTORS.	10	19	100	0	6	0	5	
B	77	B3-11 DO YOU USE OR REFER TO EDDY CURRENT LOSS IN INDUCTORS	8	19	100	0	3	0	0	
B	78	B3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTANCE IS PROPORTIONAL TO THE SQUARE OF THE NUMBER OF TURNS OF THE COIL.	4	13	67	0	0	0	0	
B	79	B2-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE CROSS SECTIONAL AREA OF THE CORE.	4	13	67	0	0	0	0	
B	80	B2-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS INVERSELY PROPORTIONAL TO ITS LENGTH.	4	13	67	0	0	0	0	
B	81	B2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE INDUCTANCE OF A COIL IS DIRECTLY PROPORTIONAL TO THE PERMEABILITY OF THE CORE MATERIAL.	6	13	67	0	3	0	0	
B	82	B2-16 DO YOU CALCULATE INDUCTANCE FOR PARTICULAR INDUCTORS USING FORMULAS.	8	19	100	0	3	0	0	
B	83	B3-17 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTANCE IN SERIES.	8	19	100	0	3	0	0	
B	84	B3-18 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN PARALLEL.	8	19	100	0	3	0	0	
B	85	B3-19 DO YOU CALCULATE THE TOTAL INDUCTANCE FOR INDUCTORS IN SERIES-PARALLEL CIRCUITS.	10	19	100	0	6	0	0	
B	86	B3-20 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LAGS VOLTAGE IN AC INDUCTOR CIRCUITS.	10	19	100	0	6	0	0	
B	87	B3-21 DO YOU CALCULATE INDUCTIVE REACTANCE.	14	19	100	0	12	67	0	
B	88	B3-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT INDUCTIVE REACTANCE IS DIRECTLY PROPORTIONAL TO FREQUENCY.	16	19	100	0	15	67	5	
B	89	B3-23 DO YOU WORK WITH POWER INDUCTORS.	8	13	67	0	6	0	0	
B	90	B3-24 DO YOU WORK WITH AUDIO FREQUENCY INDUCTORS.	6	13	67	0	3	0	0	
B	91	B3-25 DO YOU WORK WITH RADIO FREQUENCY INDUCTORS.	10	13	67	0	9	0	5	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
C 92	C1-01 DO YOU WORK WITH CAPACITORS OR CIRCUITS CONTAINING CAPACITORS IN YOUR PRESENT JOB.	51	44	100	31	54	67	40	
C 93	C1-02 DO YOU INSPECT CAPACITORS.	37	25	33	23	42	67	30	
C 94	C1-03 DO YOU CLEAN CAPACITORS.	29	13	33	8	30	67	20	CAPACITORS AND CAPACITIVE REACTANCE
C 95	C1-04 DO YOU ADJUST CAPACITORS.	27	31	100	15	24	67	20	
C 96	C1-05 DO YOU TEST CAPACITORS.	43	31	100	15	48	67	45	
C 97	C1-06 DO YOU DISCHARGE CAPACITORS.	39	31	100	15	42	67	35	
C 98	C1-07 DO YOU REMOVE OR REPLACE CAPACITORS.	41	25	100	8	48	67	35	
C 99	C1-08 DO YOU USE OR REFER TO DISTRIBUTED CAPACITANCE.	10	19	100	0	6	0	0	
C 100	C1-09 DO YOU USE OR REFER TO ORBITAL STRESS OF ELECTRONS I. A DIELECTRIC.	6	13	67	0	3	0	0	
C 101	C1-10 DO YOU USE OR REFER TO FARADS, MICROFARADS, OR PICOFARADS.	33	31	100	15	33	67	10	
C 102	C1-11 DO YOU USE OR REFER TO CAPACITANCE.	43	31	100	15	48	67	35	
C 103	C1-12 DO YOU USE OR REFER TO DIELECTRIC CONSTANT	8	19	100	0	3	0	0	
C 104	C1-13 DO YOU USE OR REFER TO WORKING VOLTAGE RATING OF CAPACITORS	27	31	100	15	24	67	15	
C 105	C1-14 DO YOU USE OR REFER TO CAPACITIVE REACTANCE	20	31	100	15	15	33	5	
C 106	C1-15 DO YOU USE OR REFER TO CAPACITOR COLOR CODES	18	6	0	8	24	33	20	
C 107	C1-16 DO YOU WORK WITH CAPACITORS IN DC CIRCUITS	47	31	67	23	55	67	55	
C 108	C1-17 DO YOU WORK WITH CAPACITORS IN AC CIRCUITS	41	31	100	15	45	67	45	
C 109	C1-18 DO YOU WORK WITH CAPACITORS IN CIRCUITS WITH BOTH DC AND AC	37	31	100	15	39	67	40	
C 110	C1-19 DO YOU WORK WITH CAPACITORS IN DON'T REMEMBER WHICH CIRCUITS	10	0	0	0	15	0	15	
C 111	C1-20 DO YOU CALCULATE CAPACITANCE FOR PARTICULAR CAPACITORS USING FORMULAS	10	25	100	8	3	0	0	
C 112	C1-21 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS DIRECTLY PROPORTIONAL TO THE DIELECTRIC CONSTANT	8	19	100	0	3	0	0	
C 113	C1-22 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITANCE OF A CAPACITOR IS INVERSELY PROPORTIONAL TO THE DIELECTRIC THICKNESS	8	19	100	0	3	0	0	
C 114	C1-23 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES	14	25	100	8	9	0	0	
C 115	C1-24 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN PARALLEL	14	25	100	8	9	0	0	
C 116	C1-25 DO YOU CALCULATE THE TOTAL CAPACITANCE OF CAPACITORS IN SERIES-PARALLEL CIRCUITS	14	25	100	8	9	0	0	
C 117	C1-26 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT DOES NOT FLOW THROUGH CAPACITORS, IT ONLY APPEARS TO DO SO	16	31	100	15	9	0	10	
C 118	C1-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT LEADS VOLTAGE IN AC CAPACITOR CIRCUITS	16	31	100	15	9	0	10	
C 119	C1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT CAPACITIVE REACTANCE IS INVERSELY PROPORTIONAL TO FREQUENCY	16	25	100	8	12	67	5	
C 120	C1-29 DO YOU CALCULATE CAPACITIVE REACTANCE	16	25	100	8	12	67	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
C 121	C1-30 DO YOU WORK WITH ROTOR-STATOR (VARIABLE) CAPACITORS	12	19	67	8	9	0	10	
C 122	C1-31 DO YOU WORK WITH COMPRESSION (TRIMMER) CAPACITORS	8	13	33	8	6	33	0	
C 123	C1-32 DO YOU WORK WITH ELECTROLYTIC (FIXED) CAPACITORS	29	31	100	15	27	67	10	
C 124	C1-33 DO YOU WORK WITH PAPER (FIXED) CAPACITORS	27	25	100	8	27	67	15	
C 125	C1-34 DO YOU WORK WITH MICA (FIXED) CAPACITORS	27	19	67	8	30	67	15	
C 126	C1-35 DO YOU WORK WITH CERAMIC (FIXED) CAPACITORS	35	25	67	15	39	67	25	
C 127	C1-36 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF CAPACITORS	20	19	33	15	21	0	30	
C 128	C2-01 DO YOU WORK WITH TRANSFORMERS IN YOUR PRESENT JOB	43	69	100	62	30	67	20	
C 129	C2-02 DO YOU INSPECT TRANSFORMERS	35	44	33	46	30	67	20	
C 130	C2-03 DO YOU CLEAN TRANSFORMERS	24	25	33	23	24	33	15	
C 131	C2-04 DO YOU ADJUST TRANSFORMERS	24	38	33	38	18	0	15	
C 132	C2-05 DO YOU TROUBLESHOOT TRANSFORMERS	39	56	67	54	30	67	20	
C 133	C2-06 DO YOU REMOVE OR REPLACE COMPLETE TRANSFORMERS	39	56	67	54	30	67	20	TRANSFORMERS
C 134	C2-07 DO YOU REMOVE OR REPLACE TRANSFORMER PARTS, SUCH AS THE PRIMARY WINDING	2	0	0	0	3	0	5	
C 135	C2-08 DO YOU MAKE A DISTINCTION BETWEEN MUTUAL INDUCTION AND MUTUAL INDUCTANCE (M)	6	13	67	0	3	0	0	
C 136	C2-09 DO YOU USE THE SYMBOL FOR MUTUAL INDUCTANCE, M	10	19	100	0	6	0	5	
C 137	C2-10 DO YOU REFER TO OR USE THE COEFFICIENT OF COUPLING WHEN WORKING WITH TRANSFORMERS	8	13	67	0	6	0	5	
C 138	C2-11 DO YOU CALCULATE TURNS RATIOS FOR TRANSFORMERS USING CURRENT OR VOLTAGE RATIOS	12	19	67	8	9	33	5	
C 139	C2-12 DO YOU REFER TO REFLECTED IMPEDANCE WHEN WORKING WITH TRANSFORMERS	6	6	33	0	6	0	5	
C 140	C2-13 DO YOU CALCULATE IMPEDANCE INTERACTIONS FOR TRANSFORMERS	4	6	33	0	3	0	0	
C 141	C2-14 DO YOU WORK WITH AUTOTRANSFORMERS	12	19	100	0	9	0	5	
C 142	C2-15 DO YOU WORK WITH POWER TRANSFORMERS	35	50	100	38	27	33	20	
C 143	C2-16 DO YOU WORK WITH AUDIO TRANSFORMERS	14	25	100	8	9	0	5	
C 144	C2-17 DO YOU WORK WITH RADIO FREQUENCY TRANSFORMERS	12	19	100	0	9	0	0	
C 145	C2-18 DO YOU WORK WITH DON'T REMEMBER WHAT TYPE OF TRANSFORMERS	6	13	0	15	3	0	5	
C 146	C2-19 DO YOU CHECK TRANSFORMERS FOR OPEN WINDINGS BY MEASURING RESISTANCE	37	56	67	54	27	67	20	
C 147	C2-20 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING RESISTANCE	35	56	67	54	24	67	15	
C 148	C2-21 DO YOU CHECK TRANSFORMERS FOR SHORTED WINDINGS BY MEASURING OUTPUT VOLTAGES	33	44	67	38	27	67	20	
C 149	C2-22 DO YOU MEASURE RESISTANCE OF TRANSFORMER WINDINGS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	14	19	67	8	12	67	5	
C 150	C2-23 DO YOU MEASURE OUTPUT VOLTAGE OF TRANSFORMERS TO DETERMINE WHETHER A TRANSFORMER HAS A STEP-UP OR STEP-DOWN TURNS RATIO	18	25	100	8	15	67	5	
C 151	C2-24 DO YOU REFER TO BASIC TRANSFORMER SCHEMATIC SYMBOLS FOR TRANSFORMERS	41	56	100	46	33	67	25	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
C 152	C2-25 DO YOU REFER TO MULTIPLE SECONDARY-WINDINGS SCHEMATIC SYMBOLS FOR TRANSFORMERS	29	31	100	15	27	67	15	
C 153	C2-26 DO YOU REFER TO MULTIPLE TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	35	50	100	38	27	67	20	
C 154	C2-27 DO YOU REFER TO CENTER TAP SCHEMATIC SYMBOLS FOR TRANSFORMERS	33	50	100	38	24	67	15	
C 155	C2-28 DO YOU REFER TO AIR CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	20	31	100	15	15	67	5	
C 156	C2-29 DO YOU REFER TO IRON CORE SCHEMATIC SYMBOLS FOR TRANSFORMERS	24	44	100	31	15	67	5	
C 157	C2-30 DO YOU REFER TO COMBINATIONS OF THE ABOVE SCHEMATIC SYMBOLS FOR TRANSFORMERS	27	38	100	23	21	67	15	
C 158	C2-31 DO YOU DETERMINE PHASE RELATIONSHIPS BETWEEN SECONDARY AND PRIMARY VOLTAGES OF TRANSFORMERS USING SCHEMATIC SYMBOLS	27	31	100	15	24	67	10	
C 159	C2-32 DO YOU DETERMINE OR REFER TO THE TYPE OF CORE IN TRANSFORMERS YOU WORK WITH	18	25	100	8	15	67	5	
C 160	C2-33 DO YOU REFER TO OR USE THE GENERAL RULE THAT THE TURNS RATIO OF A TRANSFORMER IS EQUAL TO THE VOLTAGE RATIO	8	13	67	0	6	0	0	
C 161	C2-34 DO YOU USE OR REFER TO STEP-UP OR STEP-DOWN RATIOS FOR TRANSFORMERS	22	31	100	15	18	67	5	
C 162	C2-35 DO YOU CALCULATE VOLTAGE RATIOS FOR TRANSFORMERS USING TURNS RATIOS	8	19	100	0	3	0	0	
C 163	C2-36 DO YOU CALCULATE CURRENT RATIOS FOR TRANSFORMERS USING TURNS RATIOS	8	19	100	0	3	0	0	
C 164	C2-37 DOES YOUR JOB INVOLVE ANY TASKS DEALING WITH THREE PHASE TRANSFORMERS	24	38	100	23	18	67	5	
C 165	C2-38 DO YOU INSPECT THREE PHASE TRANSFORMERS	16	13	0	15	18	67	5	
C 166	C2-39 DO YOU CLEAN OR LUBRICATE THREE PHASE TRANSFORMERS	6	13	0	15	3	0	5	
C 167	C2-40 DO YOU ADJUST THREE PHASE TRANSFORMERS	8	13	0	15	6	0	5	
C 168	C2-41 DO YOU TROUBLESHOOT THREE PHASE TRANSFORMERS	16	13	0	15	18	67	5	
C 169	C2-42 DO YOU REMOVE OR REPLACE COMPLETE THREE PHASE TRANSFORMERS	16	19	0	23	15	67	5	
C 170	C2-43 DO YOU REMOVE OR REPLACE THREE PHASE TRANSFORMER PARTS SUCH AS WINDINGS	0	0	0	0	0	0	0	
C 171	C3-01 DO YOU USE OR REFER TO PERMANENT MAGNETS	20	25	100	8	18	33	15	
C 172	C3-02 DO YOU USE OR REFER TO TEMPORARY MAGNETS	14	19	100	0	12	0	15	
C 173	C3-03 DO YOU USE OR REFER TO RETENTIVITY OF MAGNETIC MATERIALS	10	19	100	0	6	0	5	MAGNETISM
C 174	C3-04 DO YOU USE OR REFER TO RELUCTANCE OF MAGNETIC MATERIALS	10	19	100	0	6	0	5	
C 175	C3-05 DO YOU USE OR REFER TO PERMEABILITY OF MAGNETIC MATERIALS	12	25	100	8	6	0	5	
C 176	C3-06 DO YOU USE OR REFER TO RESIDUAL MAGNETISM	16	25	100	8	12	0	10	
C 177	C3-07 DO YOU USE OR REFER TO MAGNETIC LINES OF FORCE OR FLUX	33	25	100	8	36	33	40	
C 178	C3-08 DO YOU USE OR REFER TO WEBER'S THEORY OF MAGNETISM	8	25	100	8	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
C 179	C3-09 DO YOU USE OR REFER TO DOMAIN THEORY OF MAGNETISM	8	25	100	8	0	0	0	
C 180	C3-10 DO YOU USE OR REFER TO MAGNETIC INDUCTION	18	25	100	8	15	33	10	
C 181	C3-11 DO YOU USE OR REFER TO FLUX DENSITY	20	25	100	8	18	0	20	
C 182	C3-12 DO YOU USE OR REFER TO THE GENERAL RULE THAT FOR MAGNETIC POLES, LIKE POLES REPEL AND UNLIKE POLES ATTRACT	31	38	100	23	27	0	30	
C 183	C3-13 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE DIRECTION OF MAGNETIC FIELDS ABOUT STRAIGHT WIRES	18	38	100	23	9	0	10	
C 184	C3-14 DO YOU USE THE LEFT HAND THUMB RULE TO FIND THE NORTH POLE OF A CURRENT CARRYING COIL	14	31	100	15	6	0	5	
D 185	D1-01 DO YOU WORK WITH RC, LR, RCL CIRCUITS IN YOUR PRESENT JOB	16	19	67	8	15	67	10	
D 186	D1-02 DO YOU USE OR REFER TO VECTORS WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	3	0	0	
D 187	D1-03 DO YOU USE OR REFER TO PYTHAGOREAN THEOREM WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	RCL CIRCUITS
D 188	D1-04 DO YOU USE OR REFER TO SINE WHEN WORKING WITH RCL CIRCUITS	12	19	67	8	9	67	5	
D 189	D1-05 DO YOU USE OR REFER TO COSINE WHEN WORKING WITH RCL CIRCUITS	8	19	67	8	3	0	5	
D 190	D1-06 DO YOU USE OR REFER TO TANGENT WHEN WORKING WITH RCL CIRCUITS	8	19	67	8	3	0	5	
D 191	D1-07 DO YOU USE OR REFER TO WATTS WHEN WORKING WITH RCL CIRCUITS	14	19	67	8	12	33	10	
D 192	D1-08 DO YOU USE OR REFER TO TRUE POWER (PT) WHEN WORKING WITH RCL CIRCUITS	10	19	67	8	6	33	5	
D 193	D1-09 DO YOU USE OR REFER TO MAXIMUM POWER (PM) WHEN WORKING WITH RCL CIRCUITS	6	13	33	8	3	0	5	
D 194	D1-10 DO YOU USE OR REFER TO AVERAGE POWER (PAVE) WHEN WORKING WITH RCL CIRCUITS	10	13	33	8	9	33	5	
D 195	D1-11 DO YOU USE OR REFER TO APPARENT POWER (PA) WHEN WORKING WITH RCL CIRCUITS	10	19	67	8	6	0	5	
D 196	D1-12 DO YOU USE OR REFER TO POWER FACTOR (PF) WHEN WORKING WITH RCL CIRCUITS	6	19	67	8	0	0	0	
D 197	D1-13 DO YOU USE OR REFER TO RESONANT CIRCUITS WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	3	0	0	
D 198	D1-14 DO YOU USE OR REFER TO BANDWIDTH WHEN WORKING WITH RCL CIRCUITS	6	13	67	0	6	33	5	
D 199	D1-15 DO YOU USE OR REFER TO SELECTIVITY WHEN WORKING WITH RCL CIRCUITS	8	13	67	0	6	0	10	
D 200	D1-16 DO YOU USE OR REFER TO RESONANT FREQUENCY WHEN WORKING WITH RCL CIRCUITS	10	13	67	0	9	67	5	
D 201	D1-17 DO YOU USE OR REFER TO HALF POWER POINTS WHEN WORKING WITH RCL CIRCUITS	6	19	67	8	0	0	0	
D 202	D1-18 DO YOU USE OR REFER TO BANDPASS REGION WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	
D 203	D1-19 DO YOU USE OR REFER TO CIRCUIT Q WHEN WORKING WITH RCL CIRCUITS	4	13	67	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
D 204	D1-20 DO YOU USE OR REFER TO TANK CIRCUITS WHEN WORKING WITH RCL CIRCUITS	10	13	67	0	9	33	5
D 205	D1-21 DO YOU DETERMINE VALUES OF TRIGONOMETRIC FUNCTIONS USING FORMULAS	4	13	67	0	0	0	0
D 206	D1-22 DO YOU DRAW VOLTAGE, CURRENT, OR IMPEDANCE VECTOR DIAGRAMS FOR CIRCUITS	8	13	67	0	6	0	0
D 207	D1-23 DO YOU CALCULATE TOTAL IMPEDANCE FOR CAPACITIVE CIRCUITS	4	13	67	0	0	0	0
D 208	D1-24 DO YOU CALCULATE PHASE ANGLES BETWEEN IMPEDANCE AND RESISTANCE IN CAPACITIVE CIRCUITS	6	19	67	8	0	0	0
D 209	D1-25 DO YOU CALCULATE TOTAL IMPEDANCE FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 210	D1-26 DO YOU CALCULATE IMPEDANCE ANGLES FOR SERIES RCL CIRCUITS	4	13	67	0	0	0	0
D 211	D1-27 DO YOU CALCULATE APPARENT POWER (PA) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 212	D1-28 DO YOU CALCULATE TRUE POWER (PT) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 213	D1-29 DO YOU CALCULATE POWER FACTORS (PF) FOR SERIES RCL CIRCUITS	6	19	67	8	0	0	0
D 214	D1-30 DO YOU CALCULATE TOTAL CURRENT FOR PARALLEL RCL CIRCUITS	6	19	67	8	0	0	0
D 215	D1-31 DO YOU CALCULATE IMPEDANCE ANGLES FOR PARALLEL RCL CIRCUITS	4	13	67	0	0	0	0
D 216	D1-32 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING THE ASSUMED VOLTAGE METHOD	2	6	33	0	0	0	0
D 217	D1-33 DO YOU CALCULATE TOTAL IMPEDANCE FOR PARALLEL RCL CIRCUITS USING OHM'S LAW	6	19	67	8	0	0	0
D 218	D1-34 DO YOU CHECK CAPACITORS USING OHMMETERS	20	25	67	15	18	67	10
D 219	D1-35 DO YOU CHECK CAPACITORS USING SUBSTITUTION	14	6	33	0	18	67	10
D 220	D1-36 DO YOU CHECK INDUCTORS USING OHMMETERS	20	25	67	15	18	67	10
D 221	D1-37 DO YOU CHECK INDUCTORS USING SUBSTITUTION	10	6	33	0	12	67	5
D 222	D1-38 DO YOU USE OR REFER TO THE GENERAL RULE THAT THETA= 0, PF = 1, AND PA = PT FOR RESONANT CIRCUITS	4	13	67	0	0	0	0
D 223	D1-39 DO YOU CALCULATE RESONANT FREQUENCIES FOR RCL CIRCUITS	4	13	67	0	0	0	0
D 224	D1-40 DO YOU USE OR REFER TO THE GENERAL RULE THAT IMPEDANCE IS MINIMUM AND CURRENT MAXIMUM AT THE RESONANT FREQUENCY FOR SERIES RCL CIRCUITS	6	13	67	0	3	0	0
D 225	D1-41 DO YOU USE OR REFER TO THE GENERAL RULE THAT LINE CURRENT IS MINIMUM AND IMPEDANCE MAXIMUM AT RESONANT FREQUENCY FOR PARALLEL RCL CIRCUITS	8	13	67	0	6	0	5
D 226	D1-42 DO YOU USE OR REFER TO THE GENERAL RULE THAT HALF POWER POINTS ARE AT 70.7 PERCENT OF THE PEAK CURRENT VALUE	12	25	67	15	6	33	0
D 227	D1-43 DO YOU USE OR REFER TO THE GENERAL RULE THAT BANDWIDTH IS INVERSELY PROPORTIONAL TO Q	4	13	67	0	0	0	0
D 228	D1-44 DO YOU DETERMINE HOW CHANGES IN FREQUENCY, RESISTANCE, CAPACITANCE, OR INDUCTANCE WILL AFFECT CURRENT OR PHASE ANGLES FOR RCL CIRCUITS	8	25	67	15	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
D 229	D2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH, USE, OR REFER TO SERIES OR PARALLEL RESONANT CIRCUITS OR TIME CONSTANTS	10	13	67	0	9	0	5	SERIES AND PARALLEL RESONANCE (TIME CONSTANTS)
D 230	D2-02 DO YOU WORK WITH, USE, OR REFER TO TIME CONSTANTS	12	13	67	0	12	33	5	
D 231	D2-03 DO YOU WORK WITH, USE, OR REFER TO AVAILABLE VOLTAGE	8	13	67	0	6	0	5	
D 232	D2-04 DO YOU WORK WITH, USE, OR REFER TO TRANSIENT INTERVALS	8	13	67	0	6	0	5	
D 233	D2-05 DO YOU USE OR REFER TO THE GENERAL RULE THAT A CAPACITOR IS FULLY CHARGED (OR DISCHARGED) AFTER FIVE (5) TIME CONSTANTS (TC)	6	13	67	0	3	0	0	
D 234	D2-06 DO YOU USE OR REFER TO UNIVERSAL TIME CONSTANT CHARTS	6	13	67	0	3	0	0	
D 235	D2-07 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CIRCUIT CURRENT OR COMPONENT VOLTAGES AFTER A SPECIFIC TIME FOR RC OR LR CIRCUITS	4	13	67	0	0	0	0	
D 236	D2-08 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE THE TIME REQUIRED FOR CIRCUIT CURRENT OR COMPONENT VOLTAGES TO REACH SPECIFIC VALUES FOR RC OR LR CIRCUITS	4	13	67	0	0	0	0	
D 237	D2-09 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE COMPONENT VALUES REQUIRED FOR CIRCUIT CURRENT AND COMPONENT VOLTAGES TO REACH SPECIFIC VALUES IN SPECIFIC TIMES	4	13	67	0	0	0	0	
D 238	D2-10 DO YOU USE OR REFER TO THE GENERAL RULE THAT CURRENT IN LR CIRCUITS REACHES ITS MINIMUM VALUE (OR ZERO) AFTER FIVE (5) TIME CONSTANTS	4	13	67	0	0	0	0	
D 239	D3-01 DO YOU WORK WITH CIRCUITS USED AS FILTERS IN YOUR PRESENT JOB	31	44	100	31	24	100	15	FILTERS
D 240	D3-02 DO YOU INSPECT FILTER CIRCUITS	18	19	0	23	18	67	10	
D 241	D3-03 DO YOU CLEAN FILTER CIRCUITS	12	13	0	15	12	33	10	
D 242	D3-04 DO YOU ALIGN OR ADJUST FILTER CIRCUITS	12	19	33	15	9	33	5	
D 243	D3-05 DO YOU TROUBLESHOOT TO THE FILTER CIRCUIT LEVEL	18	25	67	15	15	33	10	
D 244	D3-06 DO YOU TROUBLESHOOT TO COMPONENT PARTS	18	31	100	15	12	67	0	
D 245	D3-07 DO YOU REMOVE OR REPLACE THE COMPLETE FILTER CIRCUIT	24	31	33	31	21	100	10	
D 246	D3-08 DO YOU REMOVE OR REPLACE FILTER CIRCUIT COMPONENT PARTS	12	13	67	0	12	67	5	
D 247	D3-09 DO YOU WORK WITH LOW PASS FILTERS	16	19	67	8	15	100	0	
D 248	D3-10 DO YOU WORK WITH HIGH PASS FILTERS	14	19	67	8	12	100	0	
D 249	D3-11 DO YOU WORK WITH BANDPASS FILTERS	12	19	67	8	9	67	0	
D 250	D3-12 DO YOU WORK WITH BAND-REJECT FILTERS	10	19	67	8	6	33	0	
D 251	D3-13 DON'T REMEMBER WHICH TYPE OF FILTER YOU WORK WITH	14	25	33	23	9	0	15	
D 252	D3-14 DO YOU WORK WITH L-SECTION FILTER CONFIGURATION	14	19	100	0	12	67	0	
D 253	D3-15 DO YOU WORK WITH T-SECTION FILTER CONFIGURATION	12	13	67	0	12	67	0	
D 254	D3-16 DO YOU WORK WITH PI-SECTION FILTER CONFIGURATION	12	19	100	0	9	67	0	
D 255	D3-17 DON'T REMEMBER WHICH TYPE FILTER CONFIGURATION	14	19	0	23	12	33	15	
D 256	D3-18 DO THE FILTERS YOU WORK WITH USE PARALLEL RESONANT CIRCUITS	6	13	67	0	3	0	0	
D 257	D3-19 DO THE FILTERS YOU WORK WITH USE SERIES-PARALLEL CIRCUITS	16	19	100	0	15	67	5	
D 258	D3-20 DO THE FILTERS YOU WORK WITH USE SERIES RESONANT CIRCUITS	6	13	67	0	3	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
D	259	D3-21 DON'T REMEMBER WHICH TYPE OF BASIC CIRCUIT	16	25	33	23	12	33	10	
D	260	D3-22 DO YOU USE EQUATIONS OR FORMULAS TO DETERMINE CAPACITANCE OR INDUCTANCE VALUES REQUIRED FOR SPECIFIC FILTERS	2	6	33	0	0	0	0	
E	261	E1-01 DO YOU WORK WITH COUPLING DEVICES IN YOUR PRESENT JOB	20	25	100	8	18	100	5	
E	262	E1-02 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH RC COUPLING	16	19	100	0	15	67	5	COUPLING
E	263	E1-03 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH IMPEDANCE COUPLING	16	19	100	0	15	67	5	
E	264	E1-04 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH TRANSFORMER COUPLING	20	25	100	8	18	100	5	
E	265	E1-05 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM RC COUPLING	14	19	100	0	12	67	0	
E	266	E1-06 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM IMPEDANCE COUPLING	12	13	67	0	12	67	0	
E	267	E1-07 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM TRANSFORMER COUPLING	14	19	67	8	12	67	0	
E	268	E1-08 DO YOU WORK WITH DIRECTLY COUPLED CIRCUITS	16	25	100	8	12	67	0	
E	269	E1-09 DO YOU WORK WITH CAPACITIVE-RESISTIVE COUPLED CIRCUITS	14	19	100	0	12	67	0	
E	270	E1-10 DO YOU WORK WITH CAPACITIVE-INDUCTIVE COUPLED CIRCUITS	8	13	67	0	6	33	0	
E	271	E1-11 DO YOU WORK WITH TRANSFORMER COUPLED CIRCUITS	16	25	100	8	12	67	0	
E	272	E1-12 DON'T REMEMBER WHICH TYPE OF COUPLING CIRCUITS	2	0	0	0	3	33	0	
E	273	E2-01 IN YOUR PRESENT JOB, DO YOU PERFORM SOLDERING TECHNIQUES OR INSPECT OR EVALUATE SOLDERED CONNECTIONS	94	94	100	92	94	100	95	
E	274	E2-02 DO YOU SELECT TYPE OF SOLDER TO USE	88	88	100	85	88	100	90	
E	275	E2-03 DO YOU ADD FLUX TO CONNECTIONS	86	75	100	69	91	67	95	SOLDERING
E	276	E2-04 DO YOU CLEAN CONNECTIONS USING SOLVENTS	80	69	100	62	85	67	85	
E	277	E2-05 DO YOU STRIP INSULATION FROM WIRES	94	94	100	92	94	100	95	
E	278	E2-06 DO YOU CONNECT OR DISCONNECT HEAT SINKS	84	94	100	92	79	100	75	
E	279	E2-07 DO YOU BEND OR SHAPE WIRES OR LEADS	94	94	100	92	94	100	95	
E	280	E2-08 DO YOU CUT WIRES	94	94	100	92	94	100	95	
E	281	E2-09 DO YOU FILE OR SHAPE SOLDERING IRON TIPS	88	94	100	92	85	100	90	
E	282	E2-10 DO YOU TIN SOLDERING IRON TIPS	92	94	100	92	91	100	90	
E	283	E2-11 DO YOU CLEAN SOLDERING IRON TIPS	94	94	100	92	94	100	95	
E	284	E2-12 DO YOU CLEAN ELECTRICAL SURFACES USING ERASERS	69	94	100	92	58	100	45	
E	285	E2-13 DO YOU TIN OR PRE-TIN CONDUCTORS	86	88	100	85	85	100	85	
E	286	E2-14 DO YOU INSPECT SOLDERED CONNECTIONS	92	94	100	92	91	100	90	
E	287	E2-15 DO YOU DESOLDER CONNECTIONS BY WICKING	67	69	67	69	67	100	55	
E	288	E2-16 DO YOU DESOLDER CONNECTIONS USING VACUUM DESOLDERING TOOLS	55	56	67	54	55	67	50	
E	289	E2-17 DO YOU CUT COMPONENT LEADS TO REMOVE COMPONENTS	69	88	67	92	61	100	50	
E	290	E2-18 DO YOU CRUSH COMPONENTS FOR REMOVAL	20	19	33	15	21	33	20	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
E 291	E2-19 DO YOU MAKE HANDWIRE CONNECTIONS	94	100	100	100	91	100	95	
E 292	E2-20 DO YOU MAKE PRINTED CIRCUIT BOARD CONNECTIONS	43	44	100	31	42	67	20	
E 293	E2-21 DO YOU SOLDER PASSIVE COMPONENTS SUCH AS RESISTORS OR CAPACITORS ON PRINTED CIRCUIT BOARDS	47	50	100	38	45	100	20	
E 294	E2-22 DO YOU SOLDER ACTIVE COMPONENTS SUCH AS SOLID-STATE DIODES OR TRANSISTORS ON PRINTED CIRCUIT BOARDS	39	38	67	31	39	100	15	
E 295	E3-01 DO YOU WORK WITH RELAYS ON YOUR PRESENT JOB	90	94	67	100	88	100	85	
E 296	E3-02 DO YOU ADJUST RELAYS	22	31	0	38	18	33	15	
E 297	E3-03 DO YOU CLEAN RELAYS	24	6	0	8	33	33	35	RELAYS
E 298	E3-04 DO YOU INSPECT RELAYS	59	50	0	62	64	67	60	
E 299	E3-05 DO YOU REMOVE OR REPLACE COMPLETE RELAYS	80	81	0	100	79	100	70	
E 300	E3-06 DO YOU REMOVE OR REPLACE PARTS OR RELAYS	14	13	0	15	15	33	15	
E 301	E3-07 DO YOU TROUBLESHOOT RELAYS	78	69	0	85	82	100	85	
E 302	E3-08 DO YOU STRAIGHTEN RELAY CONTACTS	24	19	0	23	27	67	30	
E 303	E3-09 DO YOU PERFORM TASKS ON RELAY CONTACTS	20	13	33	8	24	33	30	
E 304	E3-10 DO YOU PERFORM TASKS ON RELAY CORES	4	6	33	0	3	0	5	
E 305	E3-11 DO YOU PERFORM TASKS ON RELAY COILS	4	6	33	0	3	0	5	
E 306	E3-12 DO YOU PERFORM TASKS ON RELAY ARMATURES	4	6	33	0	3	0	5	
E 307	E3-13 DO YOU PERFORM TASKS ON RELAY SPRINGS	6	6	33	0	6	33	5	
E 308	E3-14 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY OPEN (NO) SCHEMATIC SYMBOLS FOR RELAYS	53	56	67	54	52	67	55	
E 309	E3-15 DO YOU USE OR REFER TO SINGLE POLE, SINGLE THROW (SPST), NORMALLY CLOSED (NC) SCHEMATIC SYMBOLS FOR RELAYS	53	56	67	54	52	67	55	
E 310	E3-16 DO YOU USE OR REFER TO SINGLE POLE, DOUBLE THROW (SPDT) SCHEMATIC SYMBOLS FOR RELAYS	51	50	67	46	52	67	55	
E 311	E3-17 DO YOU USE OR REFER TO DOUBLE POLE, DOUBLE THROW (DPDT) SCHEMATIC SYMBOLS FOR RELAYS	51	50	67	46	52	67	55	
E 312	E3-18 DO YOU USE OR REFER TO OTHER RELAY SYMBOLS SCHEMATIC SYMBOLS FOR RELAYS	65	50	33	54	73	67	75	
E 313	E3-19 DO YOU CHECK ELECTRICAL CONTINUITY OF COILS BY MEASURING RESISTANCE	71	69	33	77	73	100	75	
F 314	F1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH MICROPHONES	8	6	0	8	9	0	10	
F 315	F1-02 DO YOU INSPECT MICROPHONES	0	0	0	0	0	0	0	MICROPHONES
F 316	F1-03 DO YOU CLEAN MICROPHONES	0	0	0	0	0	0	0	
F 317	F1-04 DO YOU OPERATE MICROPHONES	8	6	0	8	9	0	10	
F 318	F1-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OR MICROPHONES	2	0	0	0	3	0	5	
F 319	F1-06 DO YOU TROUBLESHOOT DOWN TO MICROPHONE PARTS	0	0	0	0	0	0	0	
F 320	F1-07 DO YOU REMOVE OR REPLACE COMPLETE MICROPHONES	0	0	0	0	0	0	0	
F 321	F1-08 DO YOU REMOVE OR REPLACE MICROPHONE PARTS	0	0	0	0	0	0	0	
F 322	F1-09 DO YOU PERFORM TASKS ON CARBON MICROPHONES	0	0	0	0	0	0	0	
F 323	F1-10 DO YOU PERFORM TASKS ON CAPACITOR MICROPHONES	0	0	0	0	0	0	0	
F 324	F1-11 DO YOU PERFORM TASKS ON CRYSTAL MICROPHONES	2	0	0	0	3	0	5	
F 325	F1-12 DO YOU PERFORM TASKS ON DYNAMIC MICROPHONES	0	0	0	0	0	0	0	
F 326	F1-13 DO YOU PERFORM TASKS ON VELOCITY RIBBON MICROPHONES	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
F 327	F2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH SPEAKERS	0	0	0	0	0	0	0	SPEAKERS
F 328	F2-02 DO YOU INSPECT SPEAKERS	0	0	0	0	0	0	0	
F 329	F2-03 DO YOU CLEAN SPEAKERS	0	0	0	0	0	0	0	
F 330	F2-04 DO YOU OPERATE SPEAKERS	0	0	0	0	0	0	0	
F 331	F2-05 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS BUT DO NOT TROUBLESHOOT DOWN TO COMPONENT PARTS OF SPEAKERS	0	0	0	0	0	0	0	
F 332	F2-06 DO YOU TROUBLESHOOT DOWN TO SPEAKER PARTS	0	0	0	0	0	0	0	
F 333	F2-07 DO YOU REMOVE OR REPLACE COMPLETE SPEAKERS	0	0	0	0	0	0	0	
F 334	F2-08 DO YOU REMOVE OR REPLACE SPEAKER PARTS	0	0	0	0	0	0	0	
F 335	F2-09 DO YOU PERFORM ANY TASKS ON SPEAKER CONES	0	0	0	0	0	0	0	
F 336	F2-10 DO YOU PERFORM ANY TASKS ON SPEAKER SPIDERS	0	0	0	0	0	0	0	
F 337	F2-11 DO YOU PERFORM ANY TASKS ON SPEAKER FIELD COILS	0	0	0	0	0	0	0	
F 338	F2-12 DO YOU PERFORM ANY TASKS ON SPEAKER VOICE COILS	0	0	0	0	0	0	0	
F 339	F2-13 DO YOU PERFORM ANY TASKS ON SPEAKER PERMANENT MAGNETS	0	0	0	0	0	0	0	
F 340	F2-14 DO YOU PERFORM ANY TASKS ON SPEAKER ELECTROMAGNETS	0	0	0	0	0	0	0	
F 341	F2-15 DO YOU PERFORM ANY TASKS ON SPEAKER SOFT IRON CORES	0	0	0	0	0	0	0	
F 342	F3-01 DO YOU USE OSCILLOSCOPES IN YOUR PRESENT JOB	69	81	67	85	64	100	45	
F 343	F3-02 DO YOU USE OSCILLOSCOPES TO PERFORM OPERATIONAL CHECKS	73	94	100	92	64	100	45	OSCILLOSCOPES
F 344	F3-03 DO YOU USE OSCILLOSCOPES TO PERFORM ALIGNMENTS OR ADJUSTMENTS	59	69	67	69	55	67	45	
F 345	F3-04 DO YOU USE OSCILLOSCOPES TO TROUBLESHOOT ELECTRONIC CIRCUITS	61	94	67	100	45	67	30	
F 346	F3-05 DO YOU USE OSCILLOSCOPES TO MEASURE FREQUENCY	67	100	100	100	52	67	30	
F 347	F3-06 DO YOU USE OSCILLOSCOPES TO MEASURE TIME	55	94	100	92	36	67	30	
F 348	F3-07 DO YOU USE OSCILLOSCOPES TO OBSERVE LISAJOUS PATTERNS	51	50	100	38	52	67	40	
F 349	F3-08 DO YOU USE OSCILLOSCOPES TO OBSERVE SIGNALS WHILE UTILIZING ATTENUATOR PROBES	41	38	33	38	42	67	30	
F 350	F3-09 DO YOU USE OSCILLOSCOPES TO MAKE FREQUENCY OR TIME MEASUREMENTS USING DELAY TIME MULTIPLIERS	43	75	100	69	27	67	15	
F 351	F3-10 DO YOU USE OSCILLOSCOPES TO MEASURE AC VOLTAGE	69	100	100	100	55	67	40	
F 352	F3-11 DO YOU USE OSCILLOSCOPES TO MEASURE OR OBSERVE SIGNALS AFTER FIRST ADJUSTING THE GAIN AND DC BAL CONTROLS	53	81	33	92	39	67	25	
F 353	F3-12 DO YOU USE OSCILLOSCOPES TO MEASURE DC VOLTAGE	67	94	100	92	55	100	35	
G 354	G1-01 DO YOU WORK WITH SEMICONDUCTOR DIODES IN YOUR PRESENT JOB	57	44	67	38	64	100	65	
G 355	G1-02 DO YOU INSPECT DIODES	45	19	33	15	58	67	60	SEMICONDUCTOR
G 356	G1-03 DO YOU REMOVE OR REPLACE DIODES	41	25	67	15	48	100	40	DIODES
G 357	G1-04 DO YOU CHECK DIODES USING AN INSTRUMENT	55	44	100	31	61	100	60	
G 358	G1-05 DO YOU USE ENERGY LEVEL DIAGRAMS IN YOUR WORK WITH DIODES	10	6	33	0	12	33	10	
G 359	G1-06 DO YOU USE PN JUNCTION DIODE CHARACTERISTIC CURVES, TOGETHER WITH VALUES OF FORWARD AND REVERSE BIAS VOLTAGE, TO COMPUTE FORWARD OR REVERSE BIAS RESISTANCE	10	13	67	0	9	33	5	
G 360	G1-07 DO YOU COMPUTE FORWARD OR REVERSE BIAS RESISTANCE FOR DIODES	14	19	100	0	12	0	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
G 361	G1-08 DO YOU USE OR REFER TO THE GENERAL RULE THAT TEMPERATURE CAN AFFECT THE OPERATION OF DIODES	35	25	100	8	39	33	40
G 362	G1-09 DO YOU IDENTIFY SEMICONDUCTOR DIODES AS OPPOSED TO OTHER ELECTRONIC COMPONENTS, SUCH AS RESISTORS, BASED ON THEIR PHYSICAL APPEARANCE	49	31	100	15	58	100	55
G 363	G1-10 DO YOU REFER TO OR DO YOU DETERMINE THE GENERAL EFFECTS OF DOPING ON CURRENT FLOW	12	19	100	0	9	0	10
G 364	G1-11 DO YOU USE OR REFER TO MEASUREMENTS OF FORWARD BIAS RESISTANCE	35	38	100	23	33	67	30
G 365	G1-12 DO YOU USE OR REFER TO DIODE COLOR CODING	20	0	0	0	30	33	35
G 366	G1-13 DO YOU USE OR REFER TO CENTRIFUGAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	10	19	100	0	6	0	5
G 367	G1-14 DO YOU USE OR REFER TO CENTRIPETAL FORCE OF AN ELECTRON IN ORBIT AROUND A NUCLEUS	10	19	100	0	6	0	5
G 368	G1-15 DO YOU USE OR REFER TO DIODE NUMBERING SYSTEM, SUCH AS IN 538	35	19	33	15	42	100	40
G 369	G1-16 DO YOU USE OR REFER TO KINETIC ENERGY OF AN ELECTRON MOVING IN ORBIT	8	13	67	0	6	0	5
G 370	G1-17 DO YOU USE OR REFER TO POTENTIAL ENERGY OF AN ELECTRON MOVING IN ORBIT	10	19	100	0	6	0	5
G 371	G1-18 DO YOU USE OR REFER TO MEASUREMENTS OF REVERSE BIAS RESISTANCE	33	38	100	23	30	67	30
G 372	G1-19 DO YOU USE OR REFER TO NUMBER OF ELECTRONS IN A PARTICULAR SHELL OR ORBIT	10	19	100	0	6	0	5
G 373	G1-20 DO YOU USE OR REFER TO PERMISSIBLE ENERGY LEVELS OF AN ORBITING ELECTRON	8	13	67	0	6	0	5
G 374	G1-21 DO YOU USE OR REFER TO FORBIDDEN ENERGY LEVELS OF AN ORBITING ELECTRON	10	19	100	0	6	0	5
G 375	G1-22 DO YOU USE OR REFER TO VALENCE ELECTRONS (THOSE IN THE OUTERMOST SHELL)	10	19	100	0	6	0	5
G 376	G1-23 DO YOU USE OR REFER TO ATOMIC NUMBER (TOTAL NUMBER OF ELECTRONS IN ATOM)	10	19	100	0	6	0	5
G 377	G1-24 DO YOU USE OR REFER TO SYMBOLS ON THE DIODE WHICH INDICATE THE CATHODE END	47	31	100	15	55	100	50
G 378	G1-25 DO YOU NEED TO KNOW WHICH MATERIALS ARE USED IN THE CONSTRUCTION OF DIODES SUCH AS GERMANIUM OR SILICON	12	13	67	0	12	0	5
G 379	G1-26 DO YOU NEED TO KNOW THAT SEMICONDUCTORS HAVE NEGATIVE TEMPERATURE COEFFICIENTS OF RESISTANCE (AS TEMPERATURE INCREASES RESISTANCE DECREASES)	20	25	100	8	18	33	10
G 380	G1-27 DO YOU USE OR REFER TO PN JUNCTION DIODE CHARACTERISTIC CURVES, SUCH AS VOLTAGE - CURRENT CHARACTERISTIC CURVES (PERHAPS YOU DO THIS TO IDENTIFY POINTS OF STRUCTURAL BREAKDOWN OR OPERATING REGIONS)	14	19	100	0	12	33	5
G 381	G1-28 DO YOU DETERMINE WHETHER PN JUNCTION DIODES ARE FORWARD BIASED OR REVERSE BIASED WHEN YOU READ OR INTERPRET CIRCUIT DIAGRAMS	33	31	100	15	33	67	30
G 382	G1-29 DO YOU USE OR REFER TO VALENCE BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	5

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
G 383	G1-30 DO YOU USE OR REFER TO FORBIDDEN BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0	
G 384	G1-31 DO YOU USE OR REFER TO CONDUCTION BAND IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0	
G 385	G1-32 DO YOU USE OR REFER TO COVALENT BONDING IN SEMICONDUCTOR MATERIALS	8	19	100	0	3	0	0	
G 386	G1-33 DO YOU USE OR REFER TO ELECTRON-HOLE PAIR CREATED IN SEMICONDUCTORS	8	19	100	0	3	0	0	
G 387	G1-34 DO YOU USE OR REFER TO ELECTRON FLOW OR HOLE FLOW IN SEMICONDUCTORS	18	25	100	8	15	0	20	
G 388	G1-35 DO YOU USE OR REFER TO DONOR IMPURITY IN SEMICONDUCTORS	8	19	100	0	3	0	0	
G 389	G1-36 DO YOU USE OR REFER TO ACCEPTOR IMPURITY IN SEMICONDUCTORS	10	19	100	0	6	0	5	
G 390	G1-37 DO YOU USE OR REFER TO P-TYPE SEMICONDUCTOR MATERIAL	16	19	100	0	15	33	10	
G 391	G1-38 DO YOU USE OR REFER TO N-TYPE SEMICONDUCTOR MATERIAL	16	19	100	0	15	33	10	
G 392	G1-39 DO YOU USE OR REFER TO MAJORITY CARRIERS IN SEMICONDUCTORS	10	19	100	0	6	0	5	
G 393	G1-40 DO YOU USE OR REFER TO MINORITY CARRIERS IN SEMICONDUCTORS	10	19	100	0	6	0	5	
G 394	G1-41 DO YOU USE OR REFER TO JUNCTION RECOMBINATION IN SEMICONDUCTORS	8	19	100	0	3	0	0	
G 395	G1-42 DO YOU USE OR REFER TO DEPLETION REGION IN SEMICONDUCTORS	8	19	100	0	3	0	0	
G 396	G1-43 DO YOU USE OR REFER TO RELATIONSHIP BETWEEN BARRIER WIDTH AND DIFFERENCE OF POTENTIAL	10	19	100	0	6	0	5	
G 397	G1-44 DO YOU USE OR REFER TO THE IDEAL BACK TO FRONT RESISTANCE RATIO FOR DIODES	22	19	67	8	24	33	25	
G 398	G1-45 DO YOU USE OR REFER TO BARRIER HEIGHT IN SEMICONDUCTORS	12	19	100	0	9	0	5	
G 399	G1-46 DO YOU USE OR REFER TO DIODE SUBSTITUTION INFORMATION	14	0	0	0	21	33	20	
G 400	G1-47 DO YOU USE OR REFER TO MAXIMUM AVERAGE FORWARD CURRENT DIODE RATINGS	14	19	100	0	12	33	5	
G 401	G1-48 DO YOU USE OR REFER TO PEAK RECURRENT FORWARD CURRENT DIODE RATINGS	12	19	100	0	9	33	0	
G 402	G1-49 DO YOU USE OR REFER TO MAXIMUM SURGE CURRENT DIODE RATINGS	16	19	100	0	15	33	10	
G 403	G1-50 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE DIODE RATINGS	16	31	100	15	9	33	0	
G 404	G2-01 DO YOU WORK WITH TRANSISTORS IN YOUR PRESENT JOB.	29	31	100	15	27	67	15	
G 405	G2-02 DO YOU INSPECT TRANSISTORS	27	13	33	8	33	67	25	
G 406	G2-03 DO YOU REMOVE OR REPLACE TRANSISTORS	22	19	67	8	24	33	15	TRANSISTORS
G 407	G2-04 DO YOU CHECK TRANSISTORS USING AN INSTRUMENT	27	19	67	8	30	67	20	
G 408	G2-05 DO YOU USE OR REFER TO EMITTER - BASE (EB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	27	25	100	8	27	67	15	
G 409	G2-06 DO YOU USE OR REFER TO COLLECTOR - BASE (CB) FORWARD AND REVERSE RESISTANCE MEASUREMENTS	24	25	100	8	24	67	15	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC Q26	SPC Q27	SPC Q28	SPC Q29	SPC Q37	SPC Q38	SPC Q39	
G 410	G2-07 DO YOU USE OR REFER TO EMITTER - COLLECTOR (EC) RESISTANCE MEASUREMENTS	24	25	100	8	24	67	15	
G 411	G2-08 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE EMITTER - BASE JUNCTION	12	19	100	0	9	0	5	
G 412	G2-09 DO YOU USE OR REFER TO HOW BIASING AFFECTS THE PHYSICAL BARRIER WIDTH OF THE COLLECTOR - BASE JUNCTION	12	19	100	0	9	0	5	
G 413	G2-10 DO YOU USE OR REFER TO THE PHYSICAL SIZE OF THE TRANSISTOR STRUCTURE (COLLECTOR, BASE AND EMITTER)	20	19	100	0	21	67	15	
G 414	G2-11 DO YOU USE OR REFER TO LEAKAGE CURRENT (ICBO) IN A TRANSISTOR	12	19	100	0	9	0	5	
G 415	G2-12 DO YOU USE OR REFER TO TRANSISTOR SCHEMATIC SYMBOLS	31	31	100	15	30	67	20	
G 416	G2-13 DO YOU USE OR REFER TO TRANSISTOR NOTATION SUCH AS Q1, Q2, Q3, ETC	27	25	100	8	27	67	15	
G 417	G2-14 DO YOU USE OR REFER TO TRANSISTOR SUBSTITUTION INFORMATION	12	6	33	0	15	33	10	
G 418	G2-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE TRANSISTOR BASE CURRENT IB IS NORMALLY SIGNIFICANTLY SMALLER THAN THE EMITTER CURRENT IE (USUALLY IB BEING 2 TO 8 PERCENT OF IE)	14	19	100	0	12	33	5	
G 419	G2-16 DO YOU USE THE INFORMATION THAT THE EFFECT OF EMITTER BASE VOLTAGE ON BASE CURRENT IS THE CONTROLLING FACTOR FOR TRANSISTORS	16	19	100	0	15	33	10	
G 420	G2-17 DO YOU USE THE GENERAL RULE THAT LEAKAGE CURRENT (ICBO) IN A TRANSISTOR INCREASES AS TEMPERATURE INCREASES	12	19	100	0	9	0	5	
G 421	G2-18 DO YOU USE OR REFER TO TRANSISTOR CHARACTERISTIC CURVES	10	19	100	0	6	0	5	
G 422	G2-19 DO YOU USE OR REFER TO BETA TRANSISTOR GAINS	10	19	100	0	6	0	5	
G 423	G2-20 DO YOU USE OR REFER TO ALPHA TRANSISTOR GAINS	10	19	100	0	6	0	5	
G 424	G2-21 DO YOU USE OR REFER TO GAMMA TRANSISTOR GAINS	10	19	100	0	6	0	5	
G 425	G2-22 DO YOU CALCULATE BETA TRANSISTOR GAINS	8	19	100	0	3	0	0	
G 426	G2-23 DO YOU CALCULATE ALPHA TRANSISTOR GAINS	8	19	100	0	3	0	0	
G 427	G2-24 DO YOU CALCULATE GAMMA TRANSISTOR GAINS	8	19	100	0	3	0	0	
G 428	G3-01 DO YOU WORK WITH TRANSISTOR AMPLIFIERS IN YOUR PRESENT JOB	29	38	100	23	24	67	15	
G 429	G3-02 DO YOU INSPECT TRANSISTOR AMPLIFIERS	20	19	33	15	21	33	10	
G 430	G3-03 DO YOU ALIGN OR ADJUST TRANSISTOR AMPLIFIERS	14	13	33	8	15	33	5	TRANSISTOR AMPLIFIERS
G 431	G3-04 DO YOU TROUBLESHOOT TO THE AMPLIFIER CIRCUIT LEVEL	24	31	100	15	21	67	10	
G 432	G3-05 DO YOU TROUBLESHOOT TO AMPLIFIER COMPONENTS	12	19	100	0	9	67	5	
G 433	G3-06 DO YOU REMOVE OR REPLACE THE COMPLETE AMPLIFIER	27	25	33	23	27	67	15	
G 434	G3-07 DO YOU REMOVE OR REPLACE AMPLIFIER COMPONENTS	8	13	67	0	6	33	0	
G 435	G3-08 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A CHANGE IN BASE CURRENT	14	19	100	0	12	33	5	
G 436	G3-09 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR CURRENT WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	8	19	100	0	3	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
G 437	G3-10 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A CHANGE IN BASE CURRENT	12	19	100	0	9	0	5
G 438	G3-11 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN COLLECTOR VOLTAGE WHICH RESULTS FROM A SPECIFIC CHANGE IN BASE CURRENT	8	19	100	0	3	0	0
G 439	G3-12 DO YOU USE OR REFER TO (COMMON EMITTER) THE CHANGE IN BASE CURRENT WHICH RESULTS FROM AN INPUT SIGNAL	12	19	100	0	9	0	5
G 440	G3-13 DO YOU USE OR REFER TO (COMMON EMITTER) THE CALCULATIONS NECESSARY TO MEASURE THE SPECIFIC CHANGE IN BASE CURRENT WHICH RESULTS FROM A SPECIFIC INPUT SIGNAL	10	19	100	0	6	0	0
G 441	G3-14 DO YOU USE THE LOAD-LINE METHOD OF ANALYSIS IN YOUR CIRCUIT ANALYSIS (THIS METHOD REQUIRES YOU TO PLOT A LOAD-LINE ON A TRANSISTOR CHARACTERISTIC CURVE)	8	19	100	0	3	0	0
G 442	G3-15 DO YOU USE OR REFER TO THE OPERATING POINT Q (QUIESCENT POINT) FOR A TRANSISTOR	8	19	100	0	3	0	0
G 443	G3-16 DO YOU CALCULATE THE SPECIFIC QUIESCENT POINT FOR A PARTICULAR TRANSISTOR	8	19	100	0	3	0	0
G 444	G3-17 DO YOU MEASURE VOLTAGE GAIN USED IN THE COMMON EMITTER CONFIGURATION	22	38	100	23	15	0	10
G 445	G3-18 DO YOU MEASURE CURRENT GAIN USED IN THE COMMON EMITTER CONFIGURATION	16	25	67	15	12	0	10
G 446	G3-19 DO YOU MEASURE POWER GAIN USED IN THE COMMON EMITTER CONFIGURATION	12	25	67	15	6	0	5
G 447	G3-20 DO YOU CALCULATE THE VOLTAGE GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE-EMITTER VOLTAGE INTO THE CHANGE THE BASE COLLECTOR VOLTAGE TO DETERMINE THE VOLTAGE GAIN	8	19	100	0	3	0	0
G 448	G3-21 DO YOU CALCULATE THE CURRENT GAIN FOR SPECIFIC TRANSISTORS USING A FORMULA THAT IS, DO YOU DIVIDE THE CHANGE IN BASE CURRENT INTO THE CHANGE IN COLLECTOR CURRENT TO DETERMINE THE CURRENT GAIN	8	19	100	0	3	0	0
G 449	G3-22 DO YOU CALCULATE THE POWER GAIN FOR A SPECIFIC TRANSISTOR USING A FORMULA THAT IS, DO YOU MULTIPLY THE CURRENT GAIN TIMES THE VOLTAGE GAIN TO DETERMINE THE POWER GAIN	8	19	100	0	3	0	0
G 450	G3-23 DO YOU NEED TO KNOW THAT MORE COLLECTOR CURRENT IS GENERATED WITH LESS COLLECTOR VOLTAGE AS TEMPERATURE INCREASES (THIS AFFECTS THE STATIC OPERATING POINT [Q] OF THE TRANSISTOR)	8	19	100	0	3	0	0
G 451	G3-24 DO YOU COMPUTE THE STATIC OPERATING POINT [Q] OF A TRANSISTOR AT DIFFERENT TEMPERATURES	0	0	0	0	0	0	0
G 452	G3-25 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH EMITTER (SWAMPING) RESISTOR STABILIZATION	10	19	100	0	6	0	5
G 453	G3-26 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH SELF-BIAS STABILIZATION	10	25	100	8	3	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
G 454	G3-27 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH THERMISTOR STABILIZATION	10	25	100	8	3	0	0
G 455	G3-28 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH FORWARD BIAS DIODE STABILIZATION	12	25	100	8	6	0	5
G 456	G3-29 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH REVERSE BIAS DIODE STABILIZATION	12	25	100	8	6	0	5
G 457	G3-30 DO YOU IDENTIFY ON SCHEMATIC DIAGRAMS AND RELATE TO THE ACTUAL CIRCUITRY THE COMPONENTS ASSOCIATED WITH DOUBLE DIODE STABILIZATION	12	25	100	8	6	0	5
G 458	G3-31 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM EMITTER (SWAMPING) RESISTOR STABILIZATION	12	25	100	8	6	0	5
G 459	G3-32 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM SELF-BIAS STABILIZATION	12	31	100	15	3	0	0
G 460	G3-33 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM THERMISTOR STABILIZATION	6	19	67	8	3	0	0
G 461	G3-34 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM FORWARD BIAS DIODE STABILIZATION	12	25	67	15	6	0	5
G 462	G3-35 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM REVERSE BIAS DIODE STABILIZATION	12	25	67	15	6	0	5
G 463	G3-36 DO YOU TROUBLESHOOT CIRCUITS WHICH HAVE COMPONENTS WHICH PERFORM DOUBLE DIODE STABILIZATION	12	25	67	15	6	0	5
G 464	G3-37 DO YOU IDENTIFY AMPLITUDE DISTORTION FOR TRANSISTOR CIRCUITS	12	31	100	15	3	0	0
G 465	G3-38 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF AMPLITUDE DISTORTION	4	13	67	0	0	0	0
G 466	G3-39 DO YOU IDENTIFY FREQUENCY DISTORTION FOR TRANSISTOR CIRCUITS	14	31	100	15	6	0	5
G 467	G3-40 DO YOU IDENTIFY PHASE DISTORTION FOR TRANSISTOR CIRCUITS	12	31	100	15	3	0	0
G 468	G3-41 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF PHASE DISTORTION	4	13	33	8	0	0	0
G 469	G3-42 DO YOU TROUBLESHOOT TRANSISTOR CIRCUITS TO FIND THE CAUSES OF FREQUENCY DISTORTION	6	13	33	8	3	0	5
G 470	G3-43 DO YOU NEED TO KNOW THE DEGENERATIVE EFFECTS ON THE CIRCUIT CAUSED BY CHANGING EMITTER RESISTANCE FOR TRANSISTOR AMPLIFIERS IN THE COMMON COLLECTOR CONFIGURATION	10	19	100	0	6	0	5
G 471	G3-44 DO YOU DETERMINE THE CLASS OF OPERATION FOR AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	14	19	100	0	12	33	5
G 472	G3-45 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	6	19	67	8	0	0	0
G 473	G3-46 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	12	25	100	8	6	0	5
G 474	G3-47 DO YOU TROUBLESHOOT OR REPAIR COMPLEMENTARY SYMMETRY CIRCUITS	8	19	67	8	3	0	0
G 475	G3-48 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	12	25	67	15	6	0	5

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
G 476	G3-49 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	12	31	100	15	3	0	5	
H 477	H1-01 DO YOU USE OR REFER TO VARACTORS	14	31	100	15	6	0	5	
H 478	H1-02 DO YOU USE OR REFER TO TUNNEL DIODES	10	19	100	0	6	0	5	
H 479	H1-03 DO YOU USE OR REFER TO FIELD EFFECT TRANSISTORS (FET)	10	19	100	0	6	0	5	SOLID-STATE
H 480	H1-04 DO YOU USE OR REFER TO UNIJUNCTION TRANSISTORS	10	19	100	0	6	0	5	SPECIAL PURPOSE
H 481	H1-05 DO YOU USE OR REFER TO ZENER DIODES	39	38	100	23	39	67	35	DEVICES
H 482	H1-06 DO YOU USE OR REFER TO INTEGRATED CIRCUITS	51	31	33	31	61	33	70	
H 483	H2-01 IN YOUR PRESENT JOB, DO YOU WORK WITH POWER SUPPLIES	82	81	33	92	82	100	85	
H 484	H2-02 DO YOU INSPECT POWER SUPPLIES	67	69	33	77	67	100	75	
H 485	H2-03 DO YOU CLEAN POWER SUPPLIES	55	63	33	69	52	100	50	
H 486	H2-04 DO YOU ALIGN OR ADJUST POWER SUPPLIES	63	63	0	77	64	67	75	
H 487	H2-05 DO YOU TROUBLESHOOT TO POWER SUPPLY CIRCUIT LEVEL	59	63	67	62	58	67	65	POWER SUPPLIES
H 488	H2-06 DO YOU TROUBLESHOOT TO POWER SUPPLY COMPONENTS	35	50	67	46	27	33	30	
H 489	H2-07 DO YOU REMOVE OR REPLACE COMPLETE POWER SUPPLIES	71	88	67	92	64	100	65	
H 490	H2-08 DO YOU REMOVE OR REPLACE POWER SUPPLY COMPONENTS	20	31	33	31	15	0	20	
H 491	H2-09 DO YOU WORK WITH HALF-WAVE RECTIFIERS	24	31	100	15	21	67	15	
H 492	H2-10 DO YOU WORK WITH FULL-WAVE RECTIFIERS OTHER THAN BRIDGE RECTIFIERS	29	31	100	15	27	67	20	
H 493	H2-11 DO YOU WORK WITH BRIDGE RECTIFIERS	39	38	100	23	39	67	30	
H 494	H2-12 DO YOU WORK WITH THREE-PHASE RECTIFIERS	24	25	100	8	24	67	20	
H 495	H2-13 DO YOU USE OR REFER TO INPUT VOLTAGE	49	44	100	31	52	67	50	
H 496	H2-14 DO YOU USE OR REFER TO INPUT FREQUENCY	47	44	100	31	48	67	45	
H 497	H2-15 DO YOU USE OR REFER TO PEAK OUTPUT VOLTAGE	43	44	100	31	42	67	40	
H 498	H2-16 DO YOU USE OR REFER TO AVERAGE OUTPUT VOLTAGE	39	38	100	23	39	67	40	
H 499	H2-17 DO YOU USE OR REFER TO RIPPLE AMPLITUDE	22	31	100	15	18	67	10	
H 500	H2-18 DO YOU USE OR REFER TO RIPPLE FREQUENCY	20	31	100	15	15	67	10	
H 501	H2-19 DO YOU USE OR REFER TO PEAK REVERSE (INVERSE) VOLTAGE	20	25	100	8	18	67	15	
H 502	H2-20 DO YOU USE OR REFER TO SHAPE OF OUTPUT WAVEFORMS	29	38	67	31	24	67	20	
H 503	H2-21 DO YOU USE OR REFER TO EFFECTIVE OUTPUT VOLTAGE	41	44	67	38	39	67	40	
H 504	H2-22 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE FILTERS	33	31	100	15	33	67	25	
H 505	H2-23 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE FILTERS	31	25	100	8	33	67	25	
H 506	H2-24 DO YOU WORK WITH CIRCUITS WHICH EMPLOY CAPACITIVE INPUT L-TYPE FILTERS	24	25	100	8	24	67	20	
H 507	H2-25 DO YOU WORK WITH CIRCUITS WHICH EMPLOY INDUCTIVE INPUT L-TYPE FILTERS	22	25	100	8	21	67	15	
H 508	H2-26 DO YOU WORK WITH CIRCUITS WHICH EMPLOY LC PI-TYPE FILTERS	20	25	100	8	18	67	10	
H 509	H2-27 DO YOU WORK WITH CIRCUITS WHICH EMPLOY RC PI-TYPE FILTERS	20	25	100	8	18	67	10	
H 510	H2-28 DO YOU WORK WITH CIRCUITS WHICH EMPLOY DON'T REMEMBER WHICH TYPE OF FILTER	22	19	33	15	24	67	15	
H 511	H2-29 DO YOU HAVE THE OPTION OF REPLACING ONE TYPE OF FILTER WITH A DIFFERENT TYPE FILTER	8	6	33	0	9	33	5	
H 512	H3-01 DO YOU WORK WITH OSCILLATORS IN YOUR PRESENT JOB	55	88	100	85	39	67	45	OSCILLATORS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
M 513	M3-02 DO YOU INSPECT OSCILLATORS	29	31	33	31	27	67	30	
M 514	M3-03 DO YOU ALIGN OR ADJUST OSCILLATORS	33	50	33	54	24	67	30	
M 515	M3-04 DO YOU REMOVE OR REPLACE COMPLETE OSCILLATORS	27	31	33	31	24	67	30	
M 516	M3-05 DO YOU REMOVE OR REPLACE OSCILLATOR COMPONENTS	6	13	67	0	3	0	5	
M 517	M3-06 DO YOU TROUBLESHOOT TO OSCILLATOR CIRCUIT LEVEL	27	25	100	8	27	67	30	
M 518	M3-07 DO YOU TROUBLESHOOT TO OSCILLATOR COMPONENTS	10	19	100	0	6	0	5	
M 519	M3-08 DO YOU USE OR REFER TO FEEDBACK	14	19	100	0	12	0	20	
M 520	M3-09 DO YOU USE OR REFER TO FREQUENCY DETERMINING DEVICES (FDD)	29	38	100	23	24	67	30	
M 521	M3-10 DO YOU USE OR REFER TO AMPLITUDE STABILITY	31	50	100	38	21	67	20	
M 522	M3-11 DO YOU USE OR REFER TO FREQUENCY STABILITY	35	56	100	46	24	67	30	
M 523	M3-12 DO YOU USE OR REFER TO DAMPING	10	25	100	8	3	0	5	
M 524	M3-13 DO YOU USE OR REFER TO REGENERATIVE FEEDBACK	8	19	100	0	3	0	5	
M 525	M3-14 DO YOU USE OR REFER TO PIEZOELECTRIC EFFECT	8	19	100	0	3	0	5	
M 526	M3-15 DO YOU USE OR REFER TO CRITICAL DAMPING	8	19	100	0	3	0	5	
M 527	M3-16 DO YOU USE OR REFER TO UNDER DAMPING	8	19	100	0	3	0	5	
M 528	M3-17 DO YOU USE OR REFER TO OVER DAMPING	8	19	100	0	3	0	5	
M 529	M3-18 DO YOU WORK WITH OSCILLATORS WHICH USE LC TANK CIRCUITS AS FDD	10	19	100	0	6	0	10	
M 530	M3-19 DO YOU WORK WITH OSCILLATORS WHICH USE RC NETWORKS AS FDD	12	19	100	0	9	67	5	
M 531	M3-20 DO YOU WORK WITH OSCILLATORS WHICH USE CRYSTALS AS FDD	12	19	100	0	9	67	5	
M 532	M3-21 DO YOU WORK WITH OSCILLATORS WHICH USE DON'T REMEMBER WHICH TYPE OF FDD	16	13	0	15	18	0	30	
M 533	M3-22 DO YOU WORK WITH SERIES HARTLEY SINUSOIDAL OSCILLATORS	10	19	100	0	6	67	0	
M 534	M3-23 DO YOU WORK WITH SHUNT HARTLEY SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0	
M 535	M3-24 DO YOU WORK WITH COLPITTS SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0	
M 536	M3-25 DO YOU WORK WITH CLAPP SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0	
M 537	M3-26 DO YOU WORK WITH BUTLER SINUSOIDAL OSCILLATORS	6	19	100	0	0	0	0	
M 538	M3-27 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE OF OSCILLATORS	16	19	0	23	15	0	45	
I 539	I1-01 DO YOU WORK WITH MULTIVIBRATORS IN YOUR PRESENT JOB	14	19	67	8	12	67	0	
I 540	I1-02 DO YOU INSPECT WAVE GENERATING OR SHAPING CIRCUITS	16	19	33	15	15	67	5	
I 541	I1-03 DO YOU ALIGN OR ADJUST WAVE GENERATING OR SHAPING CIRCUITS	12	19	33	15	9	67	0	MULTIVIBRATORS
I 542	I1-04 DO YOU CALIBRATE WAVE GENERATING OR SHAPING CIRCUITS	10	13	33	8	9	67	5	
I 543	I1-05 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUITS	14	19	67	8	12	67	0	
I 544	I1-06 DO YOU TROUBLESHOOT TO WAVE GENERATING OR SHAPING CIRCUIT COMPONENTS	8	19	100	0	3	33	0	
I 545	I1-07 DO YOU REMOVE OR REPLACE COMPLETE WAVE GENERATING OR SHAPING CIRCUITS	10	19	67	8	6	33	0	
I 546	I1-08 DO YOU REMOVE OR REPLACE WAVE GENERATING OR SHAPING COMPONENTS	6	19	100	0	0	0	0	
I 547	I1-09 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN LC TANK CIRCUITS	2	6	33	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	By-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
I 548	11-10 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN RC NETWORKS	12	19	100	0	9	67	0	
I 549	11-11 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN CRYSTALS	2	6	33	0	0	0	0	
I 550	11-12 DO YOU WORK WITH MULTIVIBRATORS WHICH CONTAIN DON'T REMEMBER WHICH TYPE OF RDD	2	6	0	8	0	0	0	
I 551	11-13 DO YOU WORK WITH ASTABLE MULTIVIBRATORS	14	19	100	0	12	67	0	
I 552	11-14 DO YOU WORK WITH MONOSTABLE MULTIVIBRATORS	14	19	100	0	12	67	0	
I 553	11-15 DO YOU WORK WITH BISTABLE MULTIVIBRATORS	14	19	100	0	12	67	0	
I 554	11-16 DO YOU WORK WITH DON'T REMEMBER WHICH TYPE MULTIVIBRATORS	2	6	0	8	0	0	0	
I 555	12-01 DO YOU WORK WITH LIMITERS OR CLAMPERS IN YOUR PRESENT JOB	16	19	100	0	15	67	5	
I 556	12-02 DO YOU WORK WITH SERIES DIODE LIMITERS	10	19	100	0	6	0	5	
I 557	12-03 DO YOU WORK WITH SHUNT DIODE LIMITERS	12	19	100	0	9	0	5	LIMITERS AND CLAMPERS
I 558	12-04 DO YOU WORK WITH LIMITERS WITH BIAS	8	19	100	0	3	0	0	
I 559	12-05 DO YOU WORK WITH ZENER DIODE LIMITERS	12	19	100	0	9	0	0	
I 560	12-06 DO YOU WORK WITH TRANSISTOR LIMITERS	10	19	100	0	6	0	0	
I 561	12-07 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF LIMITERS	4	0	0	0	6	33	0	
I 562	12-08 DO YOU WORK WITH BASIC DIODE CLAMPING CIRCUITS	8	19	100	0	3	0	0	
I 563	12-09 DO YOU WORK WITH DIODE CLAMPING CIRCUITS WITH BIAS	8	19	100	0	3	0	0	
I 564	12-10 DO YOU WORK WITH DON'T KNOW WHICH TYPE OF CLAMPING CIRCUIT	6	0	0	0	12	33	5	
I 565	13-01 IN YOUR PRESENT JOB, DO YOU WORK ON EQUIPMENT WHICH CONTAINS ELECTRON TUBES	20	38	100	23	12	67	10	
I 566	13-02 DO YOU CHECK ELECTRON TUBES TO SEE IF THEY ARE GOOD	16	25	67	15	12	67	10	
I 567	13-03 DO YOU USE TUBE TESTERS TO CHECK ELECTRON TUBES	8	13	67	0	6	33	5	ELECTRON TUBES
I 568	13-04 DO YOU USE MULTIMETERS TO CHECK ELECTRON TUBES	14	19	100	0	12	67	10	
I 569	13-05 DO YOU USE SCOPES TO CHECK ELECTRON TUBES	8	13	67	0	6	0	10	
I 570	13-06 DO YOU USE SUBSTITUTION TO CHECK ELECTRON TUBES	16	31	67	23	9	67	5	
I 571	13-07 DO YOU USE OR REFER TO CUTOFF	8	19	100	0	3	0	5	
I 572	13-08 DO YOU USE OR REFER TO PEAK INVERSE VOLTAGE RATING	8	19	100	0	3	0	5	
I 573	13-09 DO YOU USE OR REFER TO PEAK CURRENT RATING	8	19	100	0	3	0	5	
I 574	13-10 DO YOU USE OR REFER TO TRANSIT TIME	4	13	67	0	0	0	0	
I 575	13-11 DO YOU USE OR REFER TO PLATE DISSIPATION RATING	6	13	67	0	3	0	5	
I 576	13-12 DO YOU USE OR REFER TO SATURATION	10	19	100	0	6	0	10	
I 577	13-13 DO YOU USE OR REFER TO DC PLATE RESISTANCE	10	19	100	0	6	0	10	
I 578	13-14 DO YOU COMPUTE ACTUAL VALUES OF THE DC PLATE RESISTANCE FOR ELECTRON TUBES	8	19	100	0	3	0	5	
I 579	13-15 DO YOU USE OR REFER TO PLATE VOLTAGE	12	31	100	15	3	0	5	
I 580	13-16 DO YOU USE OR REFER TO PLATE CURRENT	8	19	100	0	3	0	5	
I 581	13-17 DO YOU USE OR REFER TO GRID VOLTAGE	8	19	100	0	3	0	5	
I 582	13-18 DO YOU USE OR REFER TO GRID CURRENT	8	19	100	0	3	0	5	
I 583	13-19 DO YOU USE OR REFER TO CATHODE VOLTAGE	8	19	100	0	3	0	5	
I 584	13-20 DO YOU USE OR REFER TO CATHODE CURRENT	8	19	100	0	3	0	5	
I 585	13-21 DO YOU USE OR REFER TO THE TRIODE AMPLIFICATION FACTOR (THE AMPLIFICATION FACTOR FOR TRIODES IS DEFINED AS THE RATIO OF CHANGE IN PLATE VOLTAGE TO A CHANGE IN GRID VOLTAGE)	8	19	100	0	3	0	5	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			SPC Q26	SPC Q27	SPC Q28	SPC Q29	SPC Q37	SPC Q38	SPC Q39	
I 586	I3-22	DO YOU CALCULATE ACTUAL VALUES OF TRIODE AMPLIFICATION FACTORS	8	19	100	0	3	0	5	
I 587	I3-23	DO YOU USE OR REFER TO MULTIGRID (TETRODE, PENTODE, ETC) AMPLIFICATION FACTORS	8	19	100	0	3	0	5	
I 588	I3-24	DO YOU USE OR REFER TO ELECTRON TUBE TRANSCONDUCTANCE (G, WHICH IS MEASURED IN MHOS)	8	19	100	0	3	0	5	
I 589	I3-25	DO YOU CALCULATE ACTUAL VALUES OF ELECTRON TUBE TRANSCONDUCTANCES	8	19	100	0	3	0	5	
I 590	I3-26	DO YOU USE OR REFER TO THE ELECTRON TUBE PARAMETER CALLED AC PLATE RESISTANCE	8	19	100	0	3	0	5	
I 591	I3-27	DO YOU CALCULATE ACTUAL VALUES OF AC PLATE RESISTANCE	8	19	100	0	3	0	5	
I 592	I3-28	DO YOU USE OR REFER TO ELECTRON TUBE INTERELECTRODE CAPACITANCE	8	19	100	0	3	0	5	
I 593	I3-29	DO YOU USE OR REFER TO CHARACTERISTIC CURVES IN YOUR WORK WITH ELECTRON TUBES	8	19	100	0	3	0	5	
I 594	I3-30	DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE VOLTAGE FOR A SPECIFIED BIAS	8	19	100	0	3	0	5	
I 595	I3-31	DO YOU USE CHARACTERISTIC CURVES TO SELECT PLATE CURRENT FOR A SPECIFIED BIAS	8	19	100	0	3	0	5	
I 596	I3-32	DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR CUTOFF	8	19	100	0	3	0	5	
I 597	I3-33	DO YOU USE CHARACTERISTIC CURVES TO SELECT BIAS REQUIRED FOR SATURATION	8	19	100	0	3	0	5	
I 598	I3-34	DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER GAIN	14	31	100	15	6	0	10	
I 599	I3-35	DO YOU USE OR REFER TO ELECTRON TUBE AMPLIFIER EFFICIENCY	8	19	100	0	3	0	5	
I 600	I3-36	DO YOU USE TEST TUBE CHECKERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	13	67	0	6	0	10	
I 601	I3-37	DO YOU USE MULTIMETERS TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	12	25	100	8	6	0	10	
I 602	I3-38	DO YOU USE OSCILLOSCOPES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	19	100	0	3	0	5	
I 603	I3-39	DO YOU USE CHARACTERISTIC CURVES TO DETERMINE ELECTRON TUBE AMPLIFIER GAIN	8	19	100	0	3	0	5	
I 604	I3-40	DO YOU CALCULATE ANY ELECTRON TUBE CAPACITANCES SUCH AS INPUT CAPACITANCE	2	6	33	0	0	0	0	
I 605	I3-41	DO YOU USE OR REFER TO TUBE SOCKET NOTATION	16	25	67	15	12	67	10	
I 606	I3-42	DO YOU USE OR REFER TO PIN NUMBERING SYSTEMS	16	25	100	8	12	67	10	
I 607	I3-43	DO YOU USE OR REFER TO THE TYPE OF MATERIAL OR THE OPERATING TEMPERATURE OF THE EMITTING SURFACE IN THE ELECTRON TUBES YOU WORK ON	6	13	67	0	3	0	5	
I 608	I3-44	DO YOU USE OR REFER TO TUBE SUBSTITUTION MATERIAL SUCH AS MANUALS OR CHARTS	4	6	33	0	3	0	5	
J 609	J1-01	DO YOU WORK WITH ELECTRON TUBE AMPLIFIERS OR CIRCUITS IN YOUR PRESENT JOB	12	25	100	8	6	67	0	
J 610	J1-02	DO YOU DETERMINE THE CLASS OF OPERATION FOR ELECTRON TUBE AMPLIFIERS IN ORDER TO TROUBLESHOOT AMPLIFIER CIRCUITS	4	13	67	0	0	0	0	ELECTRON TUBE AMPLIFIERS AND CIRCUITS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
J 611	J1-03 DO YOU TROUBLESHOOT OR REPAIR PARAPHASE AMPLIFIERS	2	6	33	0	0	0	0	
J 612	J1-04 DO YOU TROUBLESHOOT OR REPAIR PUSH-PULL AMPLIFIERS	2	6	33	0	0	0	0	
J 613	J1-05 DO YOU TROUBLESHOOT OR REPAIR COMPOUND-CONNECTED AMPLIFIERS	2	6	33	0	0	0	0	
J 614	J1-06 DO YOU TROUBLESHOOT OR REPAIR CASCADE-CONNECTED AMPLIFIERS	6	6	33	0	6	67	0	
J 615	J1-07 DO YOU TROUBLESHOOT OR REPAIR DON'T KNOW WHICH TYPE OF AMPLIFIER	0	0	0	0	0	0	0	
J 616	J2-01 DO YOU WORK WITH GAS TUBES (HOT CATHODE OR COLD CATHODE)	12	25	100	8	6	67	0	
J 617	J2-02 DO YOU WORK WITH CATHODE-RAY TUBES	12	31	100	15	3	0	5	
J 618	J2-03 DO YOU USE OR REFER TO THE CHARACTERISTICS OF BEAM POWER TUBES	8	25	100	8	0	0	0	SPECIAL PURPOSE ELECTRON TUBES
J 619	J2-04 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH BEAM POWER TUBES ARE USED	0	0	0	0	0	0	0	
J 620	J2-05 DO YOU USE OR REFER TO THE CHARACTERISTICS OF THYRATRONS	2	6	33	0	0	0	0	
J 621	J2-06 DO YOU TROUBLESHOOT OR REPAIR CIRCUITS IN WHICH THYRATRONS ARE USED	0	0	0	0	0	0	0	
J 622	J2-07 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTRON GUNS OF CATHODE-RAY TUBES (CRT)	8	19	100	0	3	0	5	
J 623	J2-08 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROMAGNETIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	6	19	100	0	0	0	0	
J 624	J2-09 DO YOU USE OR REFER TO THE PRINCIPLES OF OPERATION OF ELECTROSTATIC DEFLECTION SYSTEMS OF CATHODE-RAY TUBES (CRT)	6	19	100	0	0	0	0	
J 625	J2-10 DO YOU USE OR REFER TO PHOSPHOR SCREENS	14	25	100	8	9	67	5	
J 626	J2-11 DO YOU USE OR REFER TO AQUADAG COATINGS	8	19	100	0	3	33	0	
J 627	J2-12 DO YOU USE OR REFER TO ELECTRON OPTICS	8	25	100	8	0	0	0	
J 628	J2-13 DO YOU USE OR REFER TO PERSISTENCE	8	13	67	0	6	67	0	
J 629	J2-14 DO YOU USE OR REFER TO DECAY TIMES	6	19	67	8	0	0	0	
J 630	J2-15 DO YOU USE OR REFER TO FLUORESCENCE	8	25	100	8	0	0	0	
J 631	J2-16 DO YOU USE OR REFER TO PHOSPHORESCENCE	8	25	100	8	0	0	0	
J 632	J3-01 DO YOU WORK ON TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	20	0	0	0	30	33	35	
J 633	J3-02 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	8	0	0	0	12	0	15	
J 634	J3-03 DO YOU PERFORM TASKS ON FREQUENCY MIXERS	6	0	0	0	9	33	0	HETERODYNING, MODULATION, AND DEMODULATION
J 635	J3-04 DO YOU USE OR REFER TO THE HETERODYNING OF SIGNALS IN YOUR WORK WITH TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
J 636	J3-05 DO YOU PERFORM TASKS ON REACTANCE MODULATORS	2	0	0	0	3	0	0	
J 637	J3-06 DO YOU PERFORM TASKS ON MODULATED OSCILLATORS	4	0	0	0	6	0	0	
K 638	K1-01 DO YOU WORK ON AM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0	0	
K 639	K1-02 DO YOU INSPECT AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
K 640	K1-03 DO YOU CLEAN AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	AM SYSTEMS
K 641	K1-04 DO YOU ALIGN OR ADJUST AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
K 642	K1-05 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
K 643	K1-06 DO YOU TROUBLESHOOT TO AM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	
K 644	K1-07 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
K 645	K1-08 DO YOU REMOVE OR REPLACE AM TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	
K 646	K1-09 DO YOU PERFORM TASKS ON RF OSCILLATORS	0	0	0	0	0	0	0	
K 647	K1-10 DO YOU PERFORM TASKS ON RF AMPLIFIERS	0	0	0	0	0	0	0	
K 648	K1-11 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	0	0	0	0	0	0	0	
K 649	K1-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	0	0	0	0	0	0	0	
K 650	K1-13 DO YOU PERFORM TASKS ON LOCAL OSCILLATORS	0	0	0	0	0	0	0	
K 651	K1-14 DO YOU PERFORM TASKS ON IF AMPLIFIERS	0	0	0	0	0	0	0	
K 652	K1-15 DO YOU PERFORM TASKS ON DETECTORS	0	0	0	0	0	0	0	
K 653	K1-16 DO YOU PERFORM TASKS ON DON'T REMEMBER WHICH AM STAGE	0	0	0	0	0	0	0	
K 654	K1-17 DO YOU USE OR REFER TO AMPLITUDE STABILIZATION IN TRANSMITTERS	0	0	0	0	0	0	0	
K 655	K1-18 DO YOU USE OR REFER TO FREQUENCY STABILIZATION IN TRANSMITTERS	0	0	0	0	0	0	0	
K 656	K1-19 DO YOU USE OR REFER TO SENSITIVITY OF RECEIVERS	0	0	0	0	0	0	0	
K 657	K1-20 DO YOU USE OR REFER TO SELECTIVITY OF RECEIVERS	0	0	0	0	0	0	0	
K 658	K1-21 DO YOU USE OR REFER TO 2ND HARMONIC DISTORTION	0	0	0	0	0	0	0	
K 659	K1-22 DO YOU USE OR REFER TO BANDPASS DISTORTION	0	0	0	0	0	0	0	
K 660	K1-23 DO YOU USE OR REFER TO SQUARE LAW DISTORTION	0	0	0	0	0	0	0	
K 661	K1-24 DO YOU USE OR REFER TO CO-CHANNEL INTERFERENCE	0	0	0	0	0	0	0	
K 662	K1-25 DO YOU USE OR REFER TO IMAGE FREQUENCIES IN RECEIVERS	0	0	0	0	0	0	0	
K 663	K1-26 DO YOU USE OR REFER TO SIGNAL TO IMAGE RATIOS OR IMAGE REJECTION RATIOS	0	0	0	0	0	0	0	
K 664	K1-27 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0	
K 665	K1-28 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH AM RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0	
K 666	K2-01 DO YOU WORK WITH FM TRANSMIT OR RECEIVE SYSTEMS IN YOUR PRESENT JOB	8	0	0	0	12	33	10	
K 667	K2-02 DO YOU INSPECT FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5	
K 668	K2-03 DO YOU CLEAN FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5	FM SYSTEMS
K 669	K2-04 DO YOU ALIGN FM TRANSMIT OR RECEIVE SYSTEMS	4	0	0	0	6	0	5	
K 670	K2-05 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5	
K 671	K2-06 DO YOU TROUBLESHOOT TO FM TRANSMIT OR RECEIVE COMPONENTS	6	0	0	0	9	0	5	
K 672	K2-07 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE SYSTEMS	8	0	0	0	12	33	5	
K 673	K2-08 DO YOU REMOVE OR REPLACE FM TRANSMIT OR RECEIVE COMPONENTS	2	0	0	0	3	0	5	
K 674	K2-09 DO YOU PERFORM TASKS ON AUDIO AMPLIFIERS	6	0	0	0	9	0	5	
K 675	K2-10 DO YOU PERFORM TASKS ON FREQUENCY MULTIPLIERS	6	0	0	0	9	0	5	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
K 676	K2-11 DO YOU PERFORM TASKS ON DRIVERS (INTERMEDIATE AMPLIFIERS)	4	0	0	0	6	0	5	
K 677	K2-12 DO YOU PERFORM TASKS ON POWER AMPLIFIERS	8	0	0	0	12	33	5	
K 678	K2-13 DO YOU PERFORM TASKS ON RF AMPLIFIERS	8	0	0	0	12	33	5	
K 679	K2-14 DO YOU PERFORM TASKS ON FREQUENCY CONVERTERS	4	0	0	0	6	0	5	
K 680	K2-15 DO YOU PERFORM TASKS ON IF AMPLIFIERS	4	0	0	0	6	0	5	
K 681	K2-16 DO YOU PERFORM TASKS ON LIMITERS	4	0	0	0	6	0	5	
K 682	K2-17 DO YOU PERFORM TASKS ON FREQUENCY DISCRIMINATORS	4	0	0	0	6	0	5	
K 683	K2-18 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM TRANSMITTERS	4	0	0	0	6	0	5	
K 684	K2-19 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SCHEMATIC DIAGRAMS OF FM RECEIVERS	4	0	0	0	6	0	5	
K 685	K3-01 DO YOU CONVERT DECIMAL (BASE 10) NUMBERS TO OCTAL (BASE 8) NUMBERS	31	38	100	23	27	0	15	
K 686	K3-02 DO YOU CONVERT DECIMAL NUMBERS TO BINARY (BASE 2) NUMBERS	29	31	100	15	27	0	20	NUMBERING SYSTEMS
K 687	K3-03 DO YOU CONVERT OCTAL NUMBERS TO DECIMAL NUMBERS	27	38	100	23	21	0	10	
K 688	K3-04 DO YOU CONVERT OCTAL NUMBERS TO BINARY NUMBERS	29	50	100	38	18	0	10	
K 689	K3-05 DO YOU CONVERT BINARY NUMBERS TO DECIMAL NUMBERS	35	50	100	38	27	0	20	
K 690	K3-06 DO YOU CONVERT BINARY NUMBERS TO OCTAL NUMBERS	31	50	100	38	21	0	15	
K 691	K3-07 DO YOU ADD BINARY NUMBERS TO GET A SUM	31	44	100	31	24	0	40	
K 692	K3-08 DO YOU SUBTRACT BINARY NUMBERS USING THE END-AROUND-CARRY METHOD	20	31	100	15	15	0	10	
K 693	K3-09 DO YOU SUBTRACT BINARY NUMBERS USING THE DIRECT SUBTRACTION METHOD	29	50	100	38	18	0	15	
K 694	K3-10 DO YOU ADD OCTAL NUMBERS TO GET A SUM	31	69	100	62	12	0	10	
L 695	L1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO LOGIC FUNCTIONS	22	44	100	31	12	0	5	
L 696	L1-02 DO YOU CONSTRUCT TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	14	31	100	15	6	0	0	LOGIC FUNCTIONS
L 697	L1-03 DO YOU CONSTRUCT TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	14	31	100	15	6	0	0	
L 698	L1-04 DO YOU CONSTRUCT TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	12	19	100	0	9	0	0	
L 699	L1-05 DO YOU CONSTRUCT TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS OR GATES	10	19	100	0	6	0	0	
L 700	L1-06 DO YOU USE OR REFER TO TRUTH TABLES FOR AND LOGIC SYMBOLS OR GATES	12	25	100	8	6	0	0	
L 701	L1-07 DO YOU USE OR REFER TO TRUTH TABLES FOR OR LOGIC SYMBOLS OR GATES	12	25	100	8	6	0	0	
L 702	L1-08 DO YOU USE OR REFER TO TRUTH TABLES FOR AND OR OR LOGIC SYMBOLS WITH STATE INDICATORS	12	19	100	0	9	0	0	
L 703	L1-09 DO YOU USE OR REFER TO TRUTH TABLES FOR EXCLUSIVE OR LOGIC SYMBOLS	14	25	100	8	9	0	5	
L 704	L1-10 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR AND GATES	29	44	100	31	15	0	10	
L 705	L1-11 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR OR GATES	29	44	100	31	15	0	10	
L 706	L1-12 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR NAND OR NOR GATES	22	38	100	23	15	0	10	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
L 707	L1-13 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR EXCLUSIVE OR GATES	20	31	100	15	15	0	10	
L 708	L2-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS RELATING TO BOOLEAN EQUATIONS, LOGIC DIAGRAMS, OR LOGIC CIRCUITS	18	25	100	8	15	67	5	
L 709	L2-02 DO YOU DRAW LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUITS	8	19	100	0	3	0	0	BOOLEAN EQUATIONS
L 710	L2-03 DO YOU CONSTRUCT TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	4	6	33	0	3	0	0	
L 711	L2-04 DO YOU DRAW LOGIC DIAGRAMS FROM GIVEN BOOLEAN EQUATIONS	10	19	100	0	6	0	0	
L 712	L2-05 DO YOU MEASURE INPUTS OR OUTPUTS OF LOGIC GATES	12	25	100	8	6	0	0	
L 713	L2-06 DO YOU DEVELOP OR ANALYZE BOOLEAN EQUATIONS IN THE PROCESS OF TROUBLESHOOTING DIGITAL CIRCUITS	8	13	67	0	6	0	0	
L 714	L2-07 DO YOU ANALYZE LOGIC CIRCUITS BY USING BOOLEAN ALGEBRA	10	19	100	0	6	0	0	
L 715	L2-08 DO YOU USE OR REFER TO LOGIC SYMBOLS FOR DIRECT COUPLED TRANSISTOR LOGIC (DCTL) CIRCUIT GATES	12	19	100	0	9	67	0	
L 716	L2-09 DO YOU USE OR REFER TO TRUTH TABLES FOR CURRENT MODE LOGIC (CML) CIRCUITS	4	6	33	0	3	0	0	
L 717	L2-10 DO YOU USE OR REFER TO LOGIC DIAGRAMS CONSISTING OF MORE THAN ONE GATE	16	25	100	8	12	67	0	
L 718	L2-11 DO YOU COMPUTE SUM AND CARRY EXPRESSIONS FOR SERIAL HALF OR FULL ADDER LOGIC DIAGRAMS	10	19	100	0	6	0	0	
L 719	L2-12 DO YOU TRACE DATA FLOW THROUGH PARALLEL FULL ADDER LOGIC DIAGRAMS	16	25	100	8	12	67	0	
L 720	L2-13 DO YOU WORK WITH ASTABLE (FREE RUNNING) MULTIVIBRATORS	12	25	100	8	6	0	0	
L 721	L2-14 DO YOU WORK WITH BISTABLE (FLIP-FLOP) MULTIVIBRATORS	16	25	100	8	12	67	0	
L 722	L2-15 DO YOU WORK WITH MONOSTABLE (ONE-SHOT) MULTIVIBRATORS	16	25	100	6	12	67	0	
L 723	L2-16 DO YOU USE OR REFER TO FLIP-FLOP MULTIVIBRATOR SYMBOLS	18	25	100	8	15	67	5	
L 724	L2-17 DO YOU USE OR REFER TO SINGLE-SHOT MULTIVIBRATOR SYMBOLS	16	25	100	8	12	67	0	
L 725	L2-18 DO YOU USE OR REFER TO FLIP-FLOP CIRCUIT DIAGRAMS	18	25	100	8	15	67	5	
L 726	L2-19 DO YOU USE OR REFER TO FLIP-FLOP TRUTH TABLES	10	19	100	0	6	0	0	
L 727	L2-20 DO YOU USE OR REFER TO COMPLEMENTED FLIP-FLOP LOGIC SYMBOLS	19	19	100	0	12	33	5	
L 728	L2-21 DO YOU USE OR REFER TO COMPLEMENTING FLIP-FLOP LOGIC SYMBOLS	12	19	100	0	9	33	0	
L 729	L2-22 DO YOU MEASURE OUTPUT WAVESHAPES OF LOGIC CIRCUITS	8	13	33	8	6	0	0	
L 730	L2-23 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTED FLIP-FLOP SCHEMATIC DIAGRAMS	12	19	100	0	9	0	5	
L 731	L2-24 DO YOU TRACE DATA FLOW THROUGH COMPLEMENTING FLIP-FLOP SCHEMATIC DIAGRAMS	12	19	100	0	9	0	5	
L 732	L2-25 DO YOU CONSTRUCT TRUTH TABLES FOR J-K FLIP-FLOP LOGIC SYMBOLS	6	6	33	0	6	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
L 733	L3-01 DO YOU WORK WITH DIGITAL COUNTERS IN YOUR PRESENT JOB	49	69	67	69	39	67	35	COUNTERS
L 734	L3-02 DO YOU USE OR REFER TO UP-COUNTERS	33	50	67	46	24	0	25	
L 735	L3-03 DO YOU USE OR REFER TO DOWN-COUNTERS	24	25	67	15	24	0	25	
L 736	L3-04 DO YOU USE OR REFER TO SERIAL COUNTERS	12	25	67	15	6	0	0	
L 737	L3-05 DO YOU USE OR REFER TO PARALLEL COUNTERS	10	19	67	8	6	0	0	
L 738	L3-06 DO YOU USE OR REFER TO RING COUNTERS	6	13	67	0	3	0	0	
L 739	L3-07 DO YOU USE OR REFER TO DECADE COUNTERS	22	6	0	8	30	67	35	
L 740	L3-08 DO YOU USE OR REFER TO COUNT DETECT CIRCUITS	4	0	0	0	6	0	0	
L 741	L3-09 DO YOU USE OR REFER TO DOWN CLOCKS	14	19	67	8	12	0	10	
L 742	L3-10 DO YOU USE OR REFER TO UP CLOCKS	16	25	67	15	12	0	10	
L 743	L3-11 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	6	13	67	0	3	0	0	
L 744	L3-12 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	6	13	67	0	3	0	0	
L 745	L3-13 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF DECADE COUNTERS	6	0	0	0	9	67	5	
L 746	L3-14 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF RING COUNTERS	6	13	67	0	3	0	0	
L 747	L3-15 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTER	8	13	67	0	6	0	0	
L 748	L3-16 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	14	13	67	0	15	67	5	
L 749	L3-17 DO YOU TRACE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF COUNTERS	16	25	33	23	12	67	5	
L 750	L3-18 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR UP-COUNTERS HAVING COMPLEMENTED FLIP-FLOPS	8	13	67	0	6	0	5	
L 751	L3-19 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP- OR DOWN-COUNTERS HAVING COMPLEMENTING FLIP-FLOPS	6	13	67	0	3	0	0	
L 752	L3-20 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR SERIAL UP-COUNTERS FEEDING A PARALLEL STORAGE REGISTERS	6	13	67	0	3	0	0	
L 753	L3-21 DO YOU COMPUTE THE BINARY COUNT AFTER SPECIFIC INPUT PULSES FOR OTHER TYPES OF COUNTERS	14	25	33	23	9	0	10	
L 754	L3-22 DO YOU CONSTRUCT TRUTH TABLES FROM LOGIC DIAGRAMS OF DECADE COUNTERS	0	0	0	0	0	0	0	
L 755	L3-23 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP IN RING COUNTERS FOR SPECIFIC INPUT PULSES	6	13	67	0	3	0	0	
L 756	L3-24 DO YOU DETERMINE THE APPROPRIATE AND GATE NECESSARY IN COUNT DETECT CIRCUITS TO INDICATE A REQUIRED COUNT	4	6	33	0	3	0	0	
M 757	M1-01 DO YOU WORK WITH SAWTOOTH WAVE GENERATORS	18	44	100	31	6	0	5	
M 758	M1-02 DO YOU WORK WITH TRAPEZOIDAL WAVE GENERATORS	12	38	100	23	0	0	0	
M 759	M1-03 DO YOU WORK WITH PULSED OSCILLATORS WITH REGENERATIVE FEEDBACK	10	31	100	15	0	0	0	TIMING CIRCUITS
M 760	M1-04 DO YOU WORK WITH PULSED OSCILLATORS WITHOUT REGENERATIVE FEEDBACK	10	31	100	15	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
M 761	M1-05 DO YOU WORK WITH BLOCKING OSCILLATORS	8	25	100	8	0	0	0	
M 762	M1-06 DO YOU USE OR REFER TO RISE TIME	29	63	100	54	12	67	5	
M 763	M1-07 DO YOU USE OR REFER TO FALL OR FLYBACK TIME	18	31	100	15	12	67	5	
M 764	M1-08 DO YOU USE OR REFER TO SWEEP TIME	33	63	100	54	18	67	15	
M 765	M1-09 DO YOU USE OR REFER TO ELECTRICAL LENGTH OF SAWTOOTH WAVEFORMS	12	31	100	15	3	0	0	
M 766	M1-10 DO YOU USE OR REFER TO PHYSICAL LENGTH OF SAWTOOTH WAVEFORMS	14	31	100	15	6	0	5	
M 767	M1-11 DO YOU USE OR REFER TO LINEAR SLOPE OF SAWTOOTH WAVEFORMS	10	25	100	8	3	0	0	
M 768	M1-12 DO YOU USE OR REFER TO GATE LENGTH OF SAWTOOTH WAVEFORMS	12	25	100	8	6	0	5	
M 769	M2-01 DO YOU USE SIGNAL GENERATORS IN YOUR PRESENT JOB	78	100	100	100	67	67	70	
M 770	M2-02 DO YOU PERFORM OPERATIONAL CHECKS WHILE USING SIGNAL GENERATORS	63	69	0	85	61	67	60	USE OF SIGNAL GENERATORS
M 771	M2-03 DO YOU PERFORM PERIODIC MAINTENANCE SUCH AS ADJUSTING, ALIGNING, OR CALIBRATING WHILE USING SIGNAL GENERATORS	31	38	0	46	27	67	30	
M 772	M2-04 DO YOU TROUBLESHOOT TO AN ASSEMBLY OR SUBASSEMBLY WHILE USING SIGNAL GENERATORS	39	56	0	69	30	67	30	
M 773	M2-05 DO YOU TROUBLESHOOT TO THE SMALLEST REPLACEABLE COMPONENT WHILE USING SIGNAL GENERATORS	12	19	0	23	9	33	5	
M 774	M2-06 DO YOU USE AUDIO SINE-WAVE GENERATORS	47	56	67	54	42	67	45	
M 775	M2-07 DO YOU USE AUDIO NON-SINUSOIDAL WAVE GENERATORS SUCH AS SQUARE WAVE, TRIANGLE, PULSE, OR SPIKE	22	31	33	31	18	67	15	
M 776	M2-08 DO YOU USE RF GENERATORS LESS THAN 1,000 MH	14	25	33	23	9	0	15	
M 777	M2-09 DO YOU USE RF GENERATORS GREATER THAN 1,000 MH	10	13	33	8	9	0	15	
M 778	M2-10 DO YOU USE OTHER SPECIAL PURPOSE OR MULTI-FUNCTION GENERATORS	35	44	33	46	30	67	20	
M 779	M3-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY TASKS DEALING WITH ALTERNATING CURRENT OR DIRECT CURRENT MOTORS OR GENERATORS	51	63	100	54	45	67	50	
M 780	M3-02 DO YOU INSPECT MOTORS	35	44	0	54	30	0	35	MOTORS AND GENERATORS
M 781	M3-03 DO YOU CLEAN OR LUBRICATE MOTORS	27	44	0	54	18	0	20	
M 782	M3-04 DO YOU OPERATE MOTORS	37	38	0	46	36	67	35	
M 783	M3-05 DO YOU REMOVE OR REPLACE COMPLETE MOTORS	27	25	0	31	27	0	30	
M 784	M3-06 DO YOU REMOVE OR REPLACE MOTOR PARTS	14	31	0	38	6	0	5	
M 785	M3-07 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF MOTORS	33	13	0	15	42	67	45	
M 786	M3-08 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF MOTORS	10	19	0	23	6	0	5	
M 787	M3-09 DO YOU PERFORM ANY TASKS ON FIELD COILS	4	13	67	0	0	0	0	
M 788	M3-10 DO YOU PERFORM ANY TASKS ON ARMATURES	10	25	67	15	3	0	0	
M 789	M3-11 DO YOU PERFORM ANY TASKS ON ROTORS	10	25	67	15	3	0	0	
M 790	M3-12 DO YOU PERFORM ANY TASKS ON BRUSHES	20	56	67	54	3	0	0	
M 791	M3-13 DO YOU PERFORM ANY TASKS ON SLIP RINGS	10	25	67	15	3	0	0	
M 792	M3-14 DO YOU PERFORM ANY TASKS ON COMMUTATORS	10	25	67	15	3	0	0	
M 793	M3-15 DO YOU PERFORM ANY TASKS ON POLE PIECES	4	13	67	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	DY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
N 794	M3-16 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OF THE FORCE OR TORQUE CREATED BY A MOTOR	2	6	33	0	0	0	0	
N 795	M3-17 DO YOU DETERMINE OR MEASURE THE DIRECTION OF THE MECHANICAL FORCE OR TORQUE CREATED BY A MOTOR	8	13	67	0	6	0	5	
N 796	M3-18 DO YOU DETERMINE OR MEASURE THE MAGNITUDE OR DIRECTION OF THE INDUCED VOLTAGE IN MOTORS	4	6	33	0	3	0	5	
N 797	M3-19 DO YOU WORK WITH SYNCHRONOUS MOTORS	16	25	100	8	12	0	15	
N 798	M3-20 DO YOU WORK WITH INDUCTION MOTORS	14	19	100	0	12	0	15	
N 799	M3-21 DO YOU WORK WITH SPLIT-PHASE MOTORS	12	13	33	8	12	0	15	
N 800	M3-22 DO YOU WORK WITH SOME COMBINATION OF THE ABOVE MOTORS	24	19	0	23	27	67	30	
N 801	M3-23 DO YOU INSPECT GENERATORS	22	38	33	38	15	0	15	
N 802	M3-24 DO YOU CLEAN OR LUBRICATE GENERATORS	12	31	0	38	3	0	0	
N 803	M3-25 DO YOU OPERATE GENERATORS	29	38	33	38	24	67	15	
N 804	M3-26 DO YOU REMOVE OR REPLACE COMPLETE GENERATORS	12	13	0	15	12	0	10	
N 805	M3-27 DO YOU REMOVE OR REPLACE GENERATOR PARTS	10	19	0	23	6	0	5	
N 806	M3-28 DO YOU TROUBLESHOOT AS FAR AS CHECKING WIRE CONNECTIONS OF GENERATORS	24	25	0	31	24	33	20	
N 807	M3-29 DO YOU TROUBLESHOOT DOWN TO COMPONENT PARTS OF GENERATORS	8	13	0	15	6	0	5	
N 808	N1-01 DO YOU WORK WITH METERS IN YOUR PRESENT JOB	90	100	100	100	85	100	90	
N 809	N1-02 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF PERMANENT MAGNETS	16	25	100	8	12	33	10	
N 810	N1-03 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF MOVING COILS	16	25	100	8	12	33	10	METER MOVEMENTS
N 811	N1-04 DO YOU CONCEPTUALIZE OR CONSIDER THE FUNCTIONS OF SPIRAL SPRINGS	20	31	100	15	15	33	10	
N 812	N1-05 DO YOU READ METER SCALES	90	100	100	100	85	100	90	
N 813	N1-06 DO YOU EXTEND THE RANGE OF AMMETERS	37	38	100	23	38	0	35	
N 814	N1-07 DO YOU ZERO OHMMETERS	86	94	100	92	82	100	85	
N 815	N1-08 DO YOU ZERO AMMETERS	35	25	33	23	39	0	50	
N 816	N1-09 DO YOU EXTEND THE RANGE OF VOLTMETERS	59	69	100	62	55	67	45	
N 817	N1-10 DO YOU USE OR REFER TO VOLTMETER SENSITIVITY (EXPRESSED IN UNITS OF OHMS PER VOLT)	59	75	100	69	52	67	55	
N 818	N2-01 DO YOU WORK WITH SATURABLE REACTORS OR MAGNETIC AMPLIFIERS IN YOUR PRESENT JOB	8	25	100	8	0	0	0	SATURABLE REACTORS AND MAGNETIC AMPLIFIERS
N 819	N2-02 DO YOU INSPECT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	0	0	0	3	0	5	
N 820	N2-03 DO YOU CLEAN MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	0	0	0	0	0	0	0	
N 821	N2-04 DO YOU ADJUST MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	8	0	0	0	
N 822	N2-05 DO YOU TROUBLESHOOT MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	8	0	0	0	
N 823	N2-06 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIERS OR SATURABLE REACTORS	2	6	0	8	0	0	0	
N 824	N2-07 DO YOU REMOVE OR REPLACE MAGNETIC AMPLIFIER OR SATURABLE REACTOR COMPONENTS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		DY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
N	825	N2-08 DO YOU USE OR REFER TO HYSTERESIS CURVES OR LOOPS	4	13	67	0	0	0	0	
N	826	N2-09 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	6	19	100	0	0	0	0	
N	827	N2-10 DO YOU MEASURE OUTPUT WAVEFORMS ACROSS REACTOR WINDINGS OR LOAD RESISTORS OF SINGLE WINDING SATURABLE REACTORS	2	6	33	0	0	0	0	
N	828	N2-11 DO YOU INTERPRET SCHEMATIC DRAWINGS TO DEVELOP OUTPUT WAVEFORMS FOR MAGNETIC AMPLIFIERS	2	6	33	0	0	0	0	
N	829	N2-12 DO YOU USE OR REFER TO COERCIVE FORCE IN SATURABLE REACTORS	2	6	33	0	0	0	0	
N	830	N2-13 DO YOU USE OR REFER TO RESIDUAL MAGNETISM IN SATURABLE REACTORS	4	13	67	0	0	0	0	
N	831	N2-14 DO YOU USE OR REFER TO FLUX DENSITY IN SATURABLE REACTORS	4	13	67	0	0	0	0	
N	832	N2-15 DO YOU USE OR REFER TO POINT OF SATURATION IN SATURABLE REACTORS	6	19	100	0	0	0	0	
N	833	N2-16 DO YOU USE OR REFER TO SATURABLE REACTOR SCHEMATIC SYMBOLS	6	19	100	0	0	0	0	
N	834	N3-01 DO YOU WORK WITH WAVESHAPING CIRCUITS IN YOUR PRESENT JOB	18	44	100	31	6	0	0	
N	835	N3-02 DO YOU USE OR REFER TO TRANSIENT INTERVALS	6	19	100	0	0	0	0	WAVESHAPING
N	836	N3-03 DO YOU USE OR REFER TO PULSE WIDTH (PW)	16	44	100	31	3	0	0	CIRCUITS
N	837	N3-04 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	14	38	100	23	3	0	0	
N	838	N3-05 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	16	44	100	31	3	0	0	
N	839	N3-06 DO YOU USE OR REFER TO DIFFERENTIATING CIRCUITS	6	13	67	0	3	0	0	
N	840	N3-07 DO YOU USE OR REFER TO INTEGRATING CIRCUITS	8	19	67	8	3	0	0	
N	841	N3-08 DO YOU USE OR REFER TO THE CLASSIFICATION OF TIME CONSTANTS (TC) AS LONG, MEDIUM, OR SHORT	10	25	100	8	3	0	0	
N	842	N3-09 DO YOU DETERMINE WHETHER AN LR OR RC CIRCUIT IS DIFFERENTIATING OR INTEGRATING BASED ON THE TIME CONSTANT AND OUTPUT CONFIGURATION	6	13	67	0	3	0	0	
N	843	N3-10 DO YOU WORK WITH SQUARE WAVE GENERATORS	16	44	100	31	3	0	0	
N	844	N3-11 DO YOU WORK WITH RECTANGULAR WAVE GENERATORS	14	38	100	23	3	0	0	
O	845	O1-01 DO YOU WORK ON SINGLE SIDEBAND SYSTEMS IN YOUR PRESENT JOB	0	0	0	0	0	0	0	
O	846	O1-02 DO YOU INSPECT SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O	847	O1-03 DO YOU CLEAN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	SINGLE SIDEBAND
O	848	O1-04 DO YOU ALIGN SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	SYSTEMS
O	849	O1-05 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O	850	O1-06 DO YOU TROUBLESHOOT TO SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	
O	851	O1-07 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE SYSTEMS	0	0	0	0	0	0	0	
O	852	O1-08 DO YOU REMOVE OR REPLACE SSB TRANSMIT OR RECEIVE COMPONENTS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
0 853	01-09 DO YOU PERFORM TASKS ON SSB AUDIO AMPLIFIERS	0	0	0	0	0	0	0	
0 854	01-10 DO YOU PERFORM TASKS ON SSB BALANCED MODULATORS	0	0	0	0	0	0	0	
0 855	01-11 DO YOU PERFORM TASKS ON SSB CARRIER OSCILLATORS	0	0	0	0	0	0	0	
0 856	01-12 DO YOU PERFORM TASKS ON SSB LC FILTERS	0	0	0	0	0	0	0	
0 857	01-13 DO YOU PERFORM TASKS ON SSB CRYSTAL FILTERS	0	0	0	0	0	0	0	
0 858	01-14 DO YOU PERFORM TASKS ON SSB MECHANICAL FILTERS	0	0	0	0	0	0	0	
0 859	01-15 DO YOU PERFORM TASKS ON SSB OSCILLATORS	0	0	0	0	0	0	0	
0 860	01-16 DO YOU PERFORM TASKS ON SSB MIXERS	0	0	0	0	0	0	0	
0 861	01-17 DO YOU PERFORM TASKS ON SSB DRIVERS	0	0	0	0	0	0	0	
0 862	01-18 DO YOU PERFORM TASKS ON SSB POWER AMPLIFIERS	0	0	0	0	0	0	0	
0 863	01-19 DO YOU PERFORM TASKS ON SSB RF AMPLIFIERS	0	0	0	0	0	0	0	
0 864	01-20 DO YOU PERFORM TASKS ON SSB FREQUENCY CONVERTERS	0	0	0	0	0	0	0	
0 865	01-21 DO YOU PERFORM TASKS ON SSB IF AMPLIFIERS	0	0	0	0	0	0	0	
0 866	01-22 DO YOU PERFORM TASKS ON SSB DEMODULATORS	0	0	0	0	0	0	0	
0 867	01-23 DO YOU PERFORM TASKS ON SSB DON'T REMEMBER WHICH SSB SYSTEM STAGES	0	0	0	0	0	0	0	
0 868	01-24 DO YOU USE OR REFER TO SELECTIVE FADING	0	0	0	0	0	0	0	
0 869	01-25 DO YOU USE OR REFER TO PEAK POWER	0	0	0	0	0	0	0	
0 870	01-26 DO YOU USE OR REFER TO FREQUENCY STABILITY	0	0	0	0	0	0	0	
0 871	01-27 DO YOU USE OR REFER TO RESPONSE CURVES FOR BANDWIDTH FILTERS	0	0	0	0	0	0	0	
0 872	01-28 DO YOU CALCULATE PEAK POWER OR EFFECTIVE POWER OF SSB TRANSMITTERS	0	0	0	0	0	0	0	
0 873	01-29 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB TRANSMITTER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0	
0 874	01-30 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH SSB RECEIVER SCHEMATIC DIAGRAMS	0	0	0	0	0	0	0	
0 875	02-01 DO YOU WORK ON PULSE MODULATION SYSTEMS IN YOUR PRESENT JOB	10	19	0	23	4	0	5	
0 876	02-02 DO YOU INSPECT PULSE MODULATION SYSTEMS	6	13	0	15	3	0	0	
0 877	02-03 DO YOU CLEAN PULSE MODULATION SYSTEMS	2	6	0	8	0	0	0	PULSE MODULATION SYSTEMS
0 878	02-04 DO YOU ALIGN PULSE MODULATION SYSTEMS	4	13	0	15	0	0	0	
0 879	02-05 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEMS	6	6	0	8	4	0	[illegible]	
0 880	02-06 DO YOU TROUBLESHOOT TO PULSE MODULATION SYSTEM COMPONENTS	2	6	0	8	0	0	[illegible]	
0 881	02-07 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEMS	6	6	0	8	4	0	[illegible]	
0 882	02-08 DO YOU REMOVE OR REPLACE PULSE MODULATION SYSTEM COMPONENTS	0	0	0	0	0	0	0	
0 883	02-09 DO YOU WORK ON PULSE-AMPLITUDE MODULATION (PAM) SYSTEMS	4	6	0	8	3	0	0	
0 884	02-10 DO YOU WORK ON PULSE-DURATION MODULATION (PDM) SYSTEMS	6	6	0	8	4	0	5	
0 885	02-11 DO YOU WORK ON PULSE-POSITION MODULATION (PPM) SYSTEMS	2	0	0	0	3	0	5	
0 886	02-12 DO YOU WORK ON PULSE-CODE MODULATION (PCM) SYSTEMS	4	0	0	0	6	0	5	
0 887	02-13 DO YOU WORK ON LINE PULSING MODULATION SYSTEMS	4	6	0	8	3	0	5	
0 888	02-14 DO YOU WORK ON DON'T REMEMBER WHICH TYPE OF MODULATION SYSTEM	6	13	0	15	3	0	5	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

			SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
		DY-TSK							
0	889	02-15 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER SUPPLIES	4	13	0	15	0	0	0
0	890	02-16 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM CHARGING CHOKES AND CHARGING DIODES	0	0	0	0	0	0	0
0	891	02-17 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE FORMING NETWORKS	0	0	0	0	0	0	0
0	892	02-18 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TIMERS	4	13	0	15	0	0	0
0	893	02-19 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM SWITCHES SUCH AS GAS THYRATRONS	0	0	0	0	0	0	0
0	894	02-20 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM PULSE TRANSFORMERS	4	6	0	8	3	0	0
0	895	02-21 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM TRANSMITTER TUBES	2	0	0	0	3	0	0
0	896	02-22 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM RF AMPLIFIERS	2	0	0	0	3	0	0
0	897	02-23 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM FREQUENCY CONVERTERS	4	0	0	0	6	0	5
0	898	02-24 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM IF AMPLIFIERS	2	0	0	0	3	0	0
0	899	02-25 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DETECTORS	4	6	0	8	3	0	0
0	900	02-26 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM VIDEO AMPLIFIERS	0	0	0	0	0	0	0
0	901	02-27 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM POWER VIDEO AMPLIFIERS	0	0	0	0	0	0	0
0	902	02-28 DO YOU PERFORM TASKS ON PULSE MODULATION SYSTEM DON'T REMEMBER WHICH PULSE MODULATION SYSTEM STAGES	4	6	0	8	3	0	5
0	903	02-29 DO YOU USE OR REFER TO PULSE RECURRENCE FREQUENCY (PRF)	2	6	0	8	0	0	0
0	904	02-30 DO YOU USE OR REFER TO PULSE RECURRENCE TIME (PRT)	2	6	0	8	0	0	0
0	905	02-31 DO YOU USE OR REFER TO PULSE WIDTH (PW)	8	13	0	15	6	0	5
0	906	02-32 DO YOU USE OR REFER TO PULSE SHAPE	4	6	0	8	3	0	0
0	907	02-33 DO YOU USE OR REFER TO PEAK POWER	2	6	0	8	0	0	0
0	908	02-34 DO YOU USE OR REFER TO AVERAGE POWER	2	6	0	8	0	0	0
0	909	02-35 DO YOU CALCULATE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	2	6	0	8	0	0	0
0	910	02-36 DO YOU MEASURE PULSE RECURRENCE TIME (PRT) OR PULSE RECURRENCE FREQUENCY (PRF)	2	6	0	8	0	0	0
0	911	02-37 DO YOU USE FORMULAS TO CALCULATE AVERAGE POWER OR PEAK POWER OF PULSE MODULATION TRANSMIT SYSTEMS	2	6	0	8	0	0	0
0	912	02-38 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION TRANSMITTER SCHEMATIC DIAGRAMS	2	0	0	0	3	0	0
0	913	02-39 DO YOU TRACE SIGNALS OR CURRENT PATHS THROUGH PULSE MODULATION RECEIVER SCHEMATIC DIAGRAMS	2	0	0	0	3	0	0
0	914	03-01 DO YOU WORK WITH ANTENNAS IN YOUR PRESENT JOB	24	6	0	8	33	33	35
0	915	03-02 DO YOU INSPECT ANTENNAS	16	0	0	0	27	33	25

ANTENNAS

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
U 916	03-03 DO YOU CLEAN ANTENNAS	12	0	0	0	18	33	15
U 917	03-04 DO YOU PHYSICALLY ALIGN ANTENNAS	8	0	0	0	12	33	5
U 918	03-05 DO YOU ELECTNICALLY ALIGN ANTENNAS	0	0	0	0	0	0	0
U 919	03-06 DO YOU TROUBLESHOOT TO ANTENNAS	22	0	0	0	33	0	40
U 920	03-07 DO YOU TROUBLESHOOT TO ANTENNA COMPONENTS	2	0	0	0	3	0	0
U 921	03-08 DO YOU REMOVE OR INSTALL ANTENNAS	22	0	0	0	33	33	35
U 922	03-09 DO YOU REMOVE OR REPLACE COMPONENTS OF ANTENNAS	0	0	0	0	0	0	0
U 923	03-10 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF E OR ELECTRIC FIELD LINES	0	0	0	0	0	0	0
U 924	03-11 DO YOU USE OR REFER TO TECHNICAL DATA CONTAINING REPRESENTATIONS OF H OR MAGNETIC FIELD LINES	0	0	0	0	0	0	0
U 925	03-12 DO YOU DETERMINE THE DIRECTION OF THE MAGNETIC LINES IN RELATION TO THE ELECTRIC LINES OF FORCE FOR ANTENNAS	0	0	0	0	0	0	0
U 926	03-13 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE OF CORRECT LENGTH (HALF-WAVE) ACT AS INDUCTIVE LOADS TO THE GENERATOR	0	0	0	0	0	0	0
U 927	03-14 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE LONGER THAN A HALF-WAVE ACT AS INDUCTIVE LOADS TO THE GENERATOR	0	0	0	0	0	0	0
U 928	03-15 DO YOU USE OR REFER TO THE GENERAL RULE THAT ANTENNAS WHICH ARE SHORTER THAN A HALF-WAVE ACT AS CAPACITIVE LOADS TO THE GENERATOR	0	0	0	0	0	0	0
U 929	03-16 DO YOU WORK WITH HERTZ ANTENNAS	2	0	0	0	3	0	5
U 930	03-17 DO YOU WORK WITH MARCONI ANTENNAS	0	0	0	0	0	0	0
U 931	03-18 DO YOU WORK WITH BROADSIDE ARRAYS	0	0	0	0	0	0	0
U 932	03-19 DO YOU WORK WITH END-FIRE ARRAYS	0	0	0	0	0	0	0
U 933	03-20 DO YOU WORK WITH CARDIOID ARRAYS	0	0	0	0	0	0	0
U 934	03-21 DO YOU WORK WITH COLLINEAR ARRAYS	0	0	0	0	0	0	0
U 935	03-22 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC INDUCTION FIELDS WHEN WORKING WITH ANTENNAS	0	0	0	0	0	0	0
U 936	03-23 DO YOU MEASURE ELECTROMAGNETIC INDUCTION FIELDS OF ANTENNAS	0	0	0	0	0	0	0
U 937	03-24 DO YOU USE OR REFER TO THE TERM ELECTROMAGNETIC RADIATION FIELDS WHEN WORKING WITH ANTENNAS	2	0	0	0	3	0	5
U 938	03-25 DO YOU MEASURE ELECTROMAGNETIC RADIATION FIELDS OF ANTENNAS	0	0	0	0	0	0	0
U 939	03-26 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA RADIATION	0	0	0	0	0	0	0
U 940	03-27 DO YOU USE OR REFER TO THE TIME PHASE OF ELECTRIC (E) AND MAGNETIC (H) COMPONENTS IN ANTENNA INDUCTION FIELD	0	0	0	0	0	0	0
U 941	03-28 ARE ANY OF THE ANTENNAS YOU WORK ON LINEARLY POLARIZED	0	0	0	0	0	0	0
U 942	03-29 ARE ANY OF THE ANTENNAS YOU WORK ON CIRCULARLY POLARIZED	2	0	0	0	3	33	0
U 943	03-30 DO YOU MEASURE OR DETERMINE THE POLARITY OF ANTENNAS YOU WORK ON	0	0	0	0	0	0	0
U 944	03-31 DO YOU CONSTRUCT, OR MAKE THE CALCULATIONS NECESSARY TO CONSTRUCT, ANTENNAS OF CORRECT LENGTH FOR SPECIFIC WAVELENGTHS	0	0	0	0	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

		BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
O	945	03-32 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS	0	0	0	0	0	0	0	
O	946	03-33 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS DIRECTORS	0	0	0	0	0	0	0	
O	947	03-34 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN PARASITIC ELEMENTS SERVING AS REFLECTORS	0	0	0	0	0	0	0	
O	948	03-35 DO THE ANTENNA ARRAYS YOU WORK WITH CONTAIN DON'T REMEMBER WHAT KIND OF ELEMENTS	6	0	0	0	9	0	10	
O	949	03-36 DO YOU WORK ON UNIDIRECTIONAL ANTENNAS	14	0	0	0	21	33	15	
O	850	03-37 DO YOU WORK ON BIDIRECTIONAL ANTENNAS	4	0	0	0	6	0	5	
O	851	03-38 DO YOU WORK ON DON'T REMEMBER THE DIRECTIONALITY	8	0	0	0	12	0	20	
O	852	03-39 DO YOU WORK WITH ROTAR ANTENNA ARRAYS	2	0	0	0	3	0	0	
P	953	PI-01 IN YOUR PRESENT JOB DO YOU WORK WITH TRANSMISSION LINES (TRANSMISSION LINES ARE DEFINED TO INCLUDE LEADS BETWEEN RECEIVERS AND ANTENNAS, TELEPHONE LEADS, AS WELL AS HIGH VOLTAGE POWER LINES, ETC. DO NOT CONSIDER WAVEGUIDES AS TRANSMISSION LINES	8	0	0	0	12	100	0	TRANSMISSION LINES
P	954	PI-02 DO YOU REFER TO OR USE COPPER LOSS OR I2R LOSS IN TRANSMISSION LINES	0	0	0	0	0	0	0	
P	955	PI-03 DO YOU REFER TO OR USE SKIN EFFECTS OF HIGH FREQUENCY CURRENTS IN TRANSMISSION LINES	0	0	0	0	0	0	0	
P	956	PI-04 DO YOU REFER TO OR USE RADIATION LOSS IN TRANSMISSION LINES	2	0	0	0	3	33	0	
P	957	PI-05 DO YOU USE OR REFER TO DIELECTRIC LOSS IN TRANSMISSION LINES	2	0	0	0	3	33	0	
P	958	PI-06 DO YOU USE OR REFER TO LEAKAGE LOSSES IN TRANSMISSION LINES	2	0	0	0	3	33	0	
P	959	PI-07 DO YOU WORK WITH TWISTED PAIR TRANSMISSION LINES	0	0	0	0	0	0	0	
P	960	PI-08 DO YOU WORK WITH TWIN LEAD TRANSMISSION LINES	0	0	0	0	0	0	0	
P	961	PI-09 DO YOU WORK WITH OPEN TWO-WIRE TRANSMISSION LINES	0	0	0	0	0	0	0	
P	962	PI-10 DO YOU WORK WITH FLEXIBLE COAXIAL CABLE TRANSMISSION LINES	10	0	0	0	15	100	5	
P	963	PI-11 DO YOU WORK WITH RIGID COAXIAL CABLE TRANSMISSION LINES	4	0	0	0	6	67	0	
P	964	PI-12 DO YOU TROUBLESHOOT TRANSMISSION LINES	2	0	0	0	3	33	0	
P	965	PI-13 DO YOU ANALYZE VOLTAGE OR CURRENT WAVEFORMS IN TRANSMISSION LINES TO DETERMINE THE TYPE OF TERMINATION (OPEN, SHORTED, CAPACITIVE, INDUCTIVE)	0	0	0	0	0	0	0	
P	966	PI-14 DO YOU SELECT APPROPRIATE TRANSMISSION LINES TERMINATIONS TO ACHIEVE DESIRED WAVEFORMS	0	0	0	0	0	0	0	
P	967	PI-15 DO YOU USE OR REFER TO SCHEMATIC SYMBOLS FOR LINE TERMINATIONS IN TERMS OF CIRCUIT TERMINATIONS	2	0	0	0	3	0	0	
P	968	PI-16 DO YOU MEASURE STANDING WAVE RATIOS (SR) OF TRANSMISSION LINES	2	0	0	0	3	0	5	
P	969	PI-17 DO YOU CALCULATE STANDING WAVE RATIOS (SWR) OF TRANSMISSION LINES	0	0	0	0	0	0	0	
P	970	PI-18 DO YOU PERFORM THE CALCULATIONS NECESSARY TO DETERMINE THE IMPEDANCE AND LENGTH OF QUARTER - WAVELENGTH MATCHING TRANSFORMERS TO MATCH TRANSMISSION LINES TO LOADS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
P 971	P1-19 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING MATCHING TRANSFORMERS	0	0	0	0	0	0	0	
P 972	P1-20 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING DELTA MATCHING	0	0	0	0	0	0	0	
P 973	P1-21 DO YOU SELECT THE TYPE OF TRANSMISSION LINE NEEDED FOR PARTICULAR JOBS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0	
P 974	P1-22 DO YOU USE OR REFER TO THE TERM CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	0	0	0	0	0	0	0	
P 975	P1-23 DO YOU CALCULATE THE CHARACTERISTIC IMPEDANCE (ZO) OF TRANSMISSION LINES	0	0	0	0	0	0	0	
P 976	P1-24 DO YOU USE OR REFER TO THE TERM CUTOFF FREQUENCY OF TRANSMISSION LINES	0	0	0	0	0	0	0	
P 977	P1-25 DO YOU USE OR REFER TO THE TERM VELOCITY FACTOR (K) OF TRANSMISSION LINES	0	0	0	0	0	0	0	
P 978	P1-26 DO YOU COMPUTE THE ELECTRICAL LENGTH OF TRANSMISSION LINES FOR PARTICULAR FREQUENCIES	0	0	0	0	0	0	0	
P 979	P1-27 DO YOU CONSTRUCT TRANSMISSION LINES OF PARTICULAR ELECTRICAL LENGTH FOR GIVEN FREQUENCIES	2	0	0	0	3	33	0	
P 980	P1-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT AS THE FREQUENCY INCREASES AND THE PHYSICAL LENGTH OF TRANSMISSION LINES REMAIN CONSTANT, THE ELECTRICAL LENGTH INCREASES	0	0	0	0	0	0	0	
P 981	P1-29 DO YOU WORK WITH NONRESONANT (FLAT) TRANSMISSION LINES	0	0	0	0	0	0	0	
P 982	P1-30 DO YOU WORK WITH RESONANT TRANSMISSION LINES	0	0	0	0	0	0	0	
P 983	P1-31 DO YOU WORK WITH TRANSMISSION LINES WHICH ARE MATCHED TO LOADS USING STUB MATCHING	0	0	0	0	0	0	0	
P 984	P2-01 DO YOU WORK WITH WAVEGUIDES OR CAVITY RESONATORS IN YOUR PRESENT JOB	22	0	0	0	33	0	40	
P 985	P2-02 DO YOU INSPECT WAVEGUIDES OR CAVITY RESONATORS	18	0	0	0	27	0	30	
P 986	P2-03 DO YOU CLEAN WAVEGUIDES OR CAVITY RESONATORS	6	0	0	0	9	0	5	WAVEGUIDES AND CAVITY RESONATORS
P 987	P2-04 DO YOU BEND WAVEGUIDES OR CAVITY RESONATORS	2	0	0	0	3	0	0	
P 988	P2-05 DO YOU TWIST WAVEGUIDES OR CAVITY RESONATORS	2	0	0	0	3	0	0	
P 989	P2-06 DO YOU PRESSURIZE WAVEGUIDES OR CAVITY RESONATORS	2	0	0	0	3	0	0	
P 990	P2-07 DO YOU PURGE WAVEGUIDES OR CAVITY RESONATORS	4	0	0	0	6	0	0	
P 991	P2-08 DO YOU TROUBLESHOOT WAVEGUIDES OR CAVITY RESONATORS	12	0	0	0	18	0	20	
P 992	P2-09 DO YOU REMOVE OR INSTALL COMPLETE WAVEGUIDES	24	0	0	0	36	0	45	
P 993	P2-10 DO YOU REMOVE OR INSTALL WAVEGUIDE SECTIONS	24	0	0	0	36	0	45	
P 994	P2-11 DO YOU REMOVE OR INSTALL DUMMY LOADS	6	0	0	0	9	0	10	
P 995	P2-12 DO YOU REMOVE OR INSTALL E BENDS	0	0	0	0	0	0	0	
P 996	P2-13 DO YOU REMOVE OR INSTALL H BENDS	0	0	0	0	0	0	0	
P 997	P2-14 DO YOU REMOVE OR INSTALL OTHER BENDS	8	0	0	0	12	0	10	
P 998	P2-15 DO YOU REMOVE OR INSTALL CHOKE JOINTS	2	0	0	0	3	0	0	
P 999	P2-16 DO YOU REMOVE OR INSTALL ROTATING JOINTS	2	0	0	0	3	0	0	
P1000	P2-17 DO YOU REMOVE OR INSTALL DIRECTIONAL COUPLERS	4	0	0	0	6	0	0	
P1001	P2-18 DO YOU REMOVE OR INSTALL BIDIRECTIONAL COUPLERS	2	0	0	0	3	0	0	
P1002	P2-19 DO YOU USE OR REFER TO "A" WALL OF WAVEGUIDES	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
P1003	P2-20 DO YOU USE OR REFER TO *B* WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1004	P2-21 DO YOU USE OR REFER TO CUTOFF FREQUENCY OF WAVEGUIDES	0	0	0	0	0	0	0
P1005	P2-22 DO YOU USE OR REFER TO FREQUENCY-DETERMINING WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1006	P2-23 DO YOU USE OR REFER TO POWER-DETERMINING WALL OF WAVEGUIDES	0	0	0	0	0	0	0
P1007	P2-24 DO YOU USE OR REFER TO ELECTRIC FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1008	P2-25 DO YOU USE OR REFER TO MAGNETIC FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1009	P2-26 DO YOU USE OR REFER TO DUPLEXER FIELD BOUNDARY CONDITIONS	0	0	0	0	0	0	0
P1010	P2-27 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST WAVEGUIDES ARE MADE WITH A *B* WALL SIZE OF .7 WAVELENGTHS OF THE OPERATING FREQUENCY	0	0	0	0	0	0	0
P1011	P2-28 DO YOU USE OR REFER TO THE GENERAL RULE THAT MOST *A* WALLS RANGE FROM .2 TO .5 WAVELENGTHS IN SIZE, WITH .35 USED AS AN AVERAGE	0	0	0	0	0	0	0
P1012	P2-29 ARE YOU CONCERNED WITH THE MATERIAL (SUCH AS BRASS) WHICH WAVEGUIDES ARE MADE OF	0	0	0	0	0	0	0
P1013	P2-30 DO YOU COMPUTE THE LENGTH OF A WAVEGUIDE FOR SPECIFIC INSTALLATION	0	0	0	0	0	0	0
P1014	P2-31 DO YOU USE THE RIGHT HAND RULE TO DETERMINE THE DIRECTION OF PROPAGATION, DIRECTION OF *E* FIELD, OR DIRECTION OF *H* FIELD IN WAVEGUIDES	0	0	0	0	0	0	0
P1015	P2-32 DO YOU USE OR REFER TO THE TIME PHASE OF PEAK *E* OR *H* LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1016	P2-33 DO YOU MEASURE THE TIME PHASE OF *E* OR *H* LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1017	P2-34 DO YOU USE OR REFER TO THE SPACE QUADRATURE OF *E* OR *H* LINES IN WAVEGUIDES	0	0	0	0	0	0	0
P1018	P2-35 ARE HIGH POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1019	P2-36 ARE LOW-POWER PROBES USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1020	P2-37 ARE LOOPS USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	0	0	0	0	0	0	0
P1021	P2-38 ARE APERTURES (WINDOWS OR IRISES) USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	0	0	0	3	0	5
P1022	P2-39 ARE DON'T REMEMBER THE KIND OF ENERGY COUPLING USED ON WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	8	0	0	0	12	0	10
P1023	P2-40 DO YOU DETERMINE WHERE PROBES SHOULD BE MOUNTED IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0
P1024	P2-41 DO YOU DETERMINE THE POSITIONING OF LOOPS IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
P1025 P2-42 DO YOU DETERMINE THE POSITIONING OR SIZE OF APERTURES IN WAVEGUIDES OR CAVITY RESONATORS WITHOUT REFERRING TO TECHNICAL DATA	0	0	0	0	0	0	0	
P1026 P2-43 ARE CHOKE JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	0	0	0	3	0	0	
P1027 P2-44 ARE ROTATING JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	2	0	0	0	3	0	0	
P1028 P2-45 ARE DON'T REMEMBER THE KIND OF JOINTS USED IN WAVEGUIDES OR CAVITY RESONATORS YOU WORK WITH	16	0	0	0	24	0	40	
P1029 P2-46 DO YOU TUNE CAVITY RESONATORS USING CAPACITIVE TUNING	0	0	0	0	0	0	0	
P1030 P2-47 DO YOU TUNE CAVITY RESONATORS USING INDUCTIVE TUNING	0	0	0	0	0	0	0	
P1031 P2-48 DO YOU TUNE CAVITY RESONATORS USING VOLUME TUNING	0	0	0	0	0	0	0	
P1032 P2-49 DO YOU TUNE CAVITY RESONATORS USING DON'T REMEMBER THE METHOD OF TUNING	2	0	0	0	3	0	5	
P1033 P2-50 DO YOU MEASURE THE FREQUENCY OF SIGNALS IN CAVITY RESONATORS	0	0	0	0	0	0	0	
P1034 P3-01 IN YOUR PRESENT JOB DO YOU WORK WITH KLYSTRONS, TRAVELING WAVE TUBES (TWT), PARAMETRIC AMPLIFIERS, OR MAGNETRONS	6	0	0	0	9	33	0	
P1035 P3-02 DO YOU USE OR REFER TO INTERELECTRODE CAPACITANCE	0	0	0	0	0	0	0	MICROWAVE AMPLIFIERS AND OSCILLATORS
P1036 P3-03 DO YOU USE OR REFER TO ELECTRON TRANSIT TIME	0	0	0	0	0	0	0	
P1037 P3-04 DO YOU USE OR REFER TO LEAD INDUCTANCE	0	0	0	0	0	0	0	
P1038 P3-05 DO YOU USE OR REFER TO RF LOSSES IN EXTERNAL CIRCUITRY	2	0	0	0	3	0	0	
P1039 P3-06 DO YOU USE OR REFER TO PRINCIPLE OF ELECTRON VELOCITY MODULATION	0	0	0	0	0	0	0	
P1040 P3-07 DO YOU USE OR REFER TO ELECTRON BUNCHING	0	0	0	0	0	0	0	
P1041 P3-08 DO YOU WORK WITH TWO-CAVITY KLYSTRONS	0	0	0	0	0	0	0	
P1042 P3-09 DO YOU WORK WITH THREE-CAVITY KLYSTRONS	0	0	0	0	0	0	0	
P1043 P3-10 DO YOU WORK WITH REFLEX KLYSTRONS	0	0	0	0	0	0	0	
P1044 P3-11 DO YOU WORK WITH TRAVELING-WAVE TUBES (TWT)	6	0	0	0	9	33	0	
P1045 P3-12 DO YOU WORK WITH NONDEGENERATIVE PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1046 P3-13 DO YOU WORK WITH UP-CONVERTER PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1047 P3-14 DO YOU WORK WITH MAGNETRONS	0	0	0	0	0	0	0	
P1048 P3-15 DO YOU INSPECT KLYSTRONS OR TWT	6	0	0	0	9	33	0	
P1049 P3-16 DO YOU CLEAN KLYSTRONS OR TWT	4	0	0	0	6	33	0	
P1050 P3-17 DO YOU TUNE KLYSTRONS OR TWT ELECTRICALLY	2	0	0	0	3	0	0	
P1051 P3-18 DO YOU TUNE KLYSTRONS OR TWT MECHANICALLY	2	0	0	0	3	0	0	
P1052 P3-19 DO YOU PERFORM OPERATIONAL CHECKS OF KLYSTRONS OR TWT	6	0	0	0	9	33	0	
P1053 P3-20 DO YOU TROUBLESHOOT KLYSTRONS OR TWT	0	0	0	0	0	0	0	
P1054 P3-21 DO YOU REMOVE OR REPLACE COMPLETE KLYSTRON OR TWT	6	0	0	0	9	33	0	
P1055 P3-22 DO YOU REMOVE OR REPLACE KLYSTRON OR TWT COMPONENTS	0	0	0	0	0	0	0	
P1056 P3-23 DO YOU INSPECT PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1057 P3-24 DO YOU CLEAN PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	
P1058 P3-25 DO YOU ADJUST PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039
P1059	P3-26 DO YOU TUNE PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0
P1060	P3-27 DO YOU PERFORM OPERATIONAL CHECKS OF PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0
P1061	P3-28 DO YOU TROUBLESHOOT PARAMETRIC AMPLIFIERS	0	0	0	0	0	0	0
P1062	P3-29 DO YOU REMOVE OR REPLACE COMPLETE PARAMETRIC AMPLIFIER	0	0	0	0	0	0	0
P1063	P3-30 DO YOU REMOVE OR REPLACE PARAMETRIC AMPLIFIER COMPONENTS	0	0	0	0	0	0	0
P1064	P3-31 DO YOU INSPECT MAGNETRONS	0	0	0	0	0	0	0
P1065	P3-32 DO YOU CLEAN MAGNETRONS	2	0	0	0	3	0	5
P1066	P3-33 DO YOU ADJUST MAGNETRONS	0	0	0	0	0	0	0
P1067	P3-34 DO YOU TUNE MAGNETRONS	0	0	0	0	0	0	0
P1068	P3-35 DO YOU PERFORM OPERATIONAL CHECKS OF MAGNETRONS	0	0	0	0	0	0	0
P1069	P3-36 DO YOU TROUBLESHOOT MAGNETRONS	0	0	0	0	0	0	0
P1070	P3-37 DO YOU REMOVE OR REPLACE COMPLETE MAGNETRON	0	0	0	0	0	0	0
P1071	P3-38 DO YOU REMOVE OR REPLACE MAGNETRON COMPONENTS	0	0	0	0	0	0	0
P1072	P3-39 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS COLLECTOR PLATES	0	0	0	0	0	0	0
P1073	P3-40 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER CAVITIES	0	0	0	0	0	0	0
P1074	P3-41 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATCHER GRIDS	0	0	0	0	0	0	0
P1075	P3-42 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS FEEDBACK LOOPS	0	0	0	0	0	0	0
P1076	P3-43 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS DRIFT SPACES	0	0	0	0	0	0	0
P1077	P3-44 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER GRIDS	0	0	0	0	0	0	0
P1078	P3-45 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS BUNCHER CAVITIES	0	0	0	0	0	0	0
P1079	P3-46 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CONTROL GRIDS	0	0	0	0	0	0	0
P1080	P3-47 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TWO-CAVITY KLYSTRONS CATHODES	0	0	0	0	0	0	0
P1081	P3-48 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON REPELLER (REFLECTOR) PLATES	0	0	0	0	0	0	0
P1082	P3-49 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRIDS	0	0	0	0	0	0	0
P1083	P3-50 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON GRID CAVITY GAPS	0	0	0	0	0	0	0
P1084	P3-51 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON RESONANT CAVITIES	0	0	0	0	0	0	0
P1085	P3-52 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON MAGNETIC COUPLING LOOPS	0	0	0	0	0	0	0
P1086	P3-53 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON FILAMENTS	0	0	0	0	0	0	0
P1087	P3-54 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON CATHODES	0	0	0	0	0	0	0

PCT MBRS RESPONDING 'YES' BY SELECTED GRPS

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TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
P1088	P3-55 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF REFLEX KLYSTRON OUTPUT LEADS	0	0	0	0	0	0	0	
P1089	P3-56 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES FILAMENTS	4	0	0	0	6	0	0	
P1090	P3-57 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES CATHODES	2	0	0	0	3	0	0	
P1091	P3-58 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MODULATOR GRIDS	0	0	0	0	0	0	0	
P1092	P3-59 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ANODES	2	0	0	0	3	0	0	
P1093	P3-60 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES HELIXES	2	0	0	0	3	0	0	
P1094	P3-61 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES COLLECTORS	2	0	0	0	3	0	0	
P1095	P3-62 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES MAGNETS	0	0	0	0	0	0	0	
P1096	P3-63 DO YOU USE OR REFER TO THE OPERATING PRINCIPLES OF TRAVELING-WAVE TUBES ATTENUATORS	2	0	0	0	3	0	0	
P1097	P3-64 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE CIRCULATORS	0	0	0	0	0	0	0	
P1098	P3-65 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER SIGNAL CAVITIES	0	0	0	0	0	0	0	
P1099	P3-66 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER IDLER CAVITIES	0	0	0	0	0	0	0	
P1100	P3-67 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER VARACTOR DIODES	0	0	0	0	0	0	0	
P1101	P3-68 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER FERRITE ISOLATORS	0	0	0	0	0	0	0	
P1102	P3-69 DO YOU PERFORM TASKS ON PARAMETRIC AMPLIFIER REVERSE-BIAS BATTERIES	0	0	0	0	0	0	0	
P1103	P3-70 DO YOU PERFORM TASKS ON ANODES	0	0	0	0	0	0	0	
P1104	P3-71 DO YOU PERFORM TASKS ON ANODE COOLING PINS	0	0	0	0	0	0	0	
P1105	P3-72 DO YOU PERFORM TASKS ON COUPLING LOOPS	0	0	0	0	0	0	0	
P1106	P3-73 DO YOU PERFORM TASKS ON HEATER LEADS	0	0	0	0	0	0	0	
P1107	P3-74 DO YOU PERFORM TASKS ON RESONANT CAVITIES	0	0	0	0	0	0	0	
P1108	P3-75 DO YOU PERFORM TASKS ON CATHODES	0	0	0	0	0	0	0	
P1109	P3-76 DO YOU PERFORM TASKS ON MAGNETS	0	0	0	0	0	0	0	
G1110	G1-01 DO YOU USE OR REFER TO STORAGE REGISTERS	20	19	67	8	21	0	20	
G1111	G1-02 DO YOU USE OR REFER TO SHIFT REGISTERS	22	19	67	8	24	0	25	
G1112	G1-03 DO YOU USE OR REFER TO LOGIC SYMBOLS OF SHIFT REGISTERS	14	19	67	8	12	0	10	REGISTERS
G1113	G1-04 DO YOU USE OR REFER TO LOGIC SYMBOLS OF STORAGE REGISTERS	12	19	67	8	9	0	5	
G1114	G1-05 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF SHIFT REGISTERS	6	6	33	0	6	0	0	
G1115	G1-06 DO YOU TRACE THE DATA FLOW THROUGH LOGIC DIAGRAMS OF OTHER TYPE OF REGISTERS	8	13	67	0	6	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
Q1116	Q1-07 DO YOU DETERMINE THE STATE OF EACH FLIP-FLOP OF A SHIFT REGISTER AFTER A SPECIFIED NUMBER OF SHIFT PULSES HAVE PASSED	12	13	67	0	12	0	10	
Q1117	Q2-01 DO YOU WORK WITH DIGITAL COUNTERS, REGISTERS, OR STORAGE DEVICES IN YOUR PRESENT JOB	41	69	100	62	27	0	30	
Q1118	Q2-02 DO YOU USE OR REFER TO DELAY LINES	14	25	100	8	9	0	5	STORAGE DEVICES
Q1119	Q2-03 DO YOU USE OR REFER TO MAGNETIC CORES	14	25	100	8	9	0	0	
Q1120	Q2-04 DO YOU USE OR REFER TO MAGNETIC DRUMS	24	56	100	46	9	0	5	
Q1121	Q2-05 DO YOU USE OR REFER TO MAGNETIC TAPES	18	31	100	15	12	0	5	
Q1122	Q2-06 DO YOU USE OR REFER TO ACCESS TIME OR SPEED OR MEMORY SYSTEMS	20	38	100	23	12	0	5	
Q1123	Q2-07 DO YOU USE OR REFER TO WORD CAPACITY OF MEMORY SYSTEMS	20	31	67	23	15	0	10	
Q1124	Q2-08 DO YOU USE OR REFER TO VOLATILITY OF MEMORY SYSTEMS	10	19	67	8	6	0	0	
Q1125	Q2-09 DO YOU USE OR REFER TO LOGIC SYMBOL OF DELAY LINES	6	6	33	0	6	0	0	
Q1126	Q3-01 IN YOUR PRESENT JOB, DO YOU WORK WITH DIGITAL-TO-ANALOG (D/A) CONVERTERS, ANALOG-TO-DIGITAL (A/D) CONVERTERS, OR BINARY-TO-DECIMAL READOUT CONVERTERS	29	19	67	8	33	0	35	
Q1127	Q3-02 DO YOU COMPUTE OUTPUT VOLTAGES FOR ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS FOR GIVEN INPUT VOLTAGES	6	13	67	0	3	0	0	DIGITAL TO ANALOG CONVERTERS
Q1128	Q3-03 DO YOU USE OR REFER TO THE GENERAL RULE THAT THE COUNT IN ELECTROMECHANICAL DIGITAL-TO-ANALOG (D/A) CONVERTERS IS DETERMINED BY ADDING THE DENOMINATORS OF THE RESISTORS	6	6	33	0	6	0	5	
Q1129	Q3-04 DO YOU COMPUTE ANALOG VOLTAGES FOR GIVEN BINARY COUNTS IN ELECTRONIC DIGITAL-TO-ANALOG (D/A) CONVERTERS	6	13	67	0	3	0	0	
Q1130	Q3-05 DO YOU PERFORM SAMPLE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	10	13	67	0	9	0	10	
Q1131	Q3-06 DO YOU PERFORM HOLD FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	8	13	67	0	6	0	10	
Q1132	Q3-07 DO YOU PERFORM COMPARE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	12	13	67	0	12	0	10	
Q1133	Q3-08 DO YOU PERFORM DIGITIZE FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	10	13	67	0	9	0	5	
Q1134	Q3-09 DO YOU PERFORM DON'T REMEMBER WHICH FUNCTION TASKS ON VARIABLE TIME ANALOG-TO-DIGITAL (A/D) CONVERTER CIRCUITS	4	0	0	0	6	0	10	
Q1135	Q3-10 DO YOU USE OR REFER TO SAMPLE FUNCTION OF A/D CONVERTERS	10	13	67	0	9	0	10	
Q1136	Q3-11 DO YOU USE OR REFER TO HOLD FUNCTION OF A/D CONVERTERS	6	13	67	0	3	0	5	
Q1137	Q3-12 DO YOU USE OR REFER TO COMPARE FUNCTION OF A/D CONVERTERS	8	13	67	0	6	0	5	
Q1138	Q3-13 DO YOU USE OR REFER TO DIGITAL FUNCTION OF A/D CONVERTERS	10	13	67	0	9	0	10	
Q1139	Q3-14 DO YOU PERFORM ANY TASKS ON MECHANICAL ANALOG-TO-DIGITAL (A/D) CONVERTERS	8	6	33	0	9	0	10	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

	BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
R1140	R1-01 DO YOU WORK WITH PHANTASTRON CIRCUITRY IN YOUR PRESENT JOB	0	0	0	0	0	0	0	PHANTASTRONS
R1141	R2-01 IN YOUR PRESENT JOB DO YOU WORK WITH SCHMITT TRIGGER CIRCUITS	12	19	100	0	9	67	0	
R1142	R2-02 DO YOU TRACE DATA FLOW THROUGH SCHMITT TRIGGER SCHEMATIC DIAGRAMS	12	19	100	0	9	67	0	SCHMITT TRIGGERS
R1143	R2-03 DO YOU USE OR REFER TO SCHMITT TRIGGER LOGIC SYMBOLS	10	13	67	0	9	67	0	
R1144	R3-01 IN YOUR PRESENT JOB DO YOU FABRICATE MULTICONDUCTOR CABLES	22	19	0	23	24	33	25	CABLE FABRICATION
R1145	R3-02 DO YOU FABRICATE COAXIAL CABLES	18	13	0	15	21	33	15	
S1146	S1-01 IN YOUR PRESENT JOB DO YOU PERFORM ANY TASKS ON VISUAL READOUT SYSTEMS	45	31	0	38	52	67	55	
S1147	S1-02 DO YOU PERFORM ANY TASKS ON NIXIE LIGHTS OR NIXIE LIGHT DECODER SYSTEMS	20	0	0	0	30	67	25	INPUT/OUTPUT DEVICES
S1148	S1-03 DO YOU ANALYZE NIXIE LIGHT DECODER SYSTEMS USING BOOLEAN ALGEBRA	4	0	0	0	6	33	0	
S1149	S2-01 DO YOU WORK WITH PHOTO TUBES IN YOUR PRESENT JOB	29	81	0	100	3	0	5	PHOTO SENSITIVE DEVICES
S1150	S3-01 IN YOUR PRESENT JOB DO YOU WORK WITH CHOPPER CIRCUITS	2	0	0	0	3	0	0	
S1151	S3-02 DO YOU MEASURE EXCITATION FREQUENCIES	2	0	0	0	3	0	0	
S1152	S3-03 DO YOU MEASURE VOLTAGE-CURRENT PHASE RELATIONSHIPS	2	0	0	0	3	0	0	
S1153	S3-04 DO YOU USE OR REFER TO EXCITATION FREQUENCIES	0	0	0	0	0	0	0	
S1154	S3-05 DO YOU USE OR REFER TO VOLTAGE-CURRENT PHASE RELATIONSHIPS	0	0	0	0	0	0	0	
S1155	S3-06 DO YOU USE SERVOS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	SYNCHRONOUS VIBRATIONS (CHOPPER CIRCUITS)
S1156	S3-07 DO YOU USE DETECTORS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	0	0	0	0	0	0	0	
S1157	S3-08 DO YOU USE ERROR SIGNAL DEVICES IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	
S1158	S3-09 DO YOU USE COMPARISON CIRCUITS IN CONJUNCTION WITH CHOPPER CIRCUIT OPERATION	2	0	0	0	3	0	0	
T1159	T1-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1160	T1-02 DO YOU INSPECT INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1161	T1-03 DO YOU CLEAN INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1162	T1-04 DO YOU ADJUST OR CALIBRATE INFRARED SYSTEMS	2	0	0	0	3	0	0	INFRARED
T1163	T1-05 DO YOU OPERATE INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1164	T1-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1165	T1-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1166	T1-08 DO YOU TROUBLESHOOT DOWN TO INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	
T1167	T1-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF INFRARED SYSTEMS	2	0	0	0	3	0	0	
T1168	T1-10 DO YOU REMOVE OR REPLACE INFRARED SYSTEM COMPONENT PARTS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK		SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
T1169	T1-11 DO YOU USE OR REFER TO FAR REGION	0	0	0	0	0	0	0	
T1170	T1-12 DO YOU USE OR REFER TO INTERMEDIATE REGION	0	0	0	0	0	0	0	
T1171	T1-13 DO YOU USE OR REFER TO NEAR REGION	0	0	0	0	0	0	0	
T1172	T1-14 DO YOU USE OR REFER TO MICRON	0	0	0	0	0	0	0	
T1173	T1-15 DO YOU USE OR REFER TO GRAY BODIES	0	0	0	0	0	0	0	
T1174	T1-16 DO YOU USE OR REFER TO BLACK BODIES	0	0	0	0	0	0	0	
T1175	T1-17 DO YOU USE OR REFER TO ABSORPTION	0	0	0	0	0	0	0	
T1176	T1-18 DO YOU USE OR REFER TO SCATTERING	0	0	0	0	0	0	0	
T1177	T1-19 DO YOU USE OR REFER TO ABSOLUTE ZERO	0	0	0	0	0	0	0	
T1178	T1-20 DO YOU PERFORM TASKS ON BLITZ	0	0	0	0	0	0	0	
T1179	T1-21 DO YOU PERFORM TASKS ON TARGET BUTTONS	2	6	0	6	0	0	0	
T1180	T1-22 DO YOU PERFORM TASKS ON ERECTOR LENSES	2	6	0	8	0	0	0	
T1181	T1-23 DO YOU PERFORM TASKS ON OCULAR LENSES	2	6	0	8	0	0	0	
T1182	T1-24 DO YOU PERFORM TASKS ON CORRECTION LENSES	2	6	0	8	0	0	0	
T1183	T1-25 DO YOU PERFORM TASKS ON FILTERS	2	6	0	8	0	0	0	
T1184	T1-26 DO YOU PERFORM TASKS ON SPHERICAL MIRRORS	0	0	0	0	0	0	0	
T1185	T1-27 DO YOU PERFORM TASKS ON PLANE MIRRORS	4	6	0	8	0	0	0	
T1186	T2-01 DOES YOUR PRESENT JOB INVOLVE ANY TASKS DEALING WITH LASERS	0	0	0	0	0	0	0	
T1187	T2-02 DO YOU INSPECT LASER SYSTEMS	0	0	0	0	0	0	0	
T1188	T2-03 DO YOU CLEAN LASER SYSTEMS	0	0	0	0	0	0	0	LASERS
T1189	T2-04 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	
T1190	T2-05 DO YOU OPERATE LASER SYSTEMS	0	0	0	0	0	0	0	
T1191	T2-06 DO YOU TROUBLESHOOT WIRE CONNECTIONS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1192	T2-07 DO YOU TROUBLESHOOT MAJOR ASSEMBLIES OF LASER SYSTEMS	2	0	0	0	3	0	0	
T1193	T2-08 DO YOU TROUBLESHOOT TO COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1194	T2-09 DO YOU REMOVE OR REPLACE MAJOR ASSEMBLIES OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1195	T2-10 DO YOU REMOVE OR REPLACE COMPONENT PARTS OF LASER SYSTEMS	0	0	0	0	0	0	0	
T1196	T2-11 DO YOU USE OR REFER TO ANGSTROMS (A)	0	0	0	0	0	0	0	
T1197	T2-12 DO YOU USE OR REFER TO ELECTRON ENERGY LEVELS	0	0	0	0	0	0	0	
T1198	T2-13 DO YOU USE OR REFER TO GROUND STATE	0	0	0	0	0	0	0	
T1199	T2-14 DO YOU USE OR REFER TO EXCITED STATE	0	0	0	0	0	0	0	
T1200	T2-15 DO YOU USE OR REFER TO PACKET OF RADIATION	0	0	0	0	0	0	0	
T1201	T2-16 DO YOU USE OR REFER TO PHOTONS	0	0	0	0	0	0	0	
T1202	T2-17 DO YOU USE OR REFER TO SPONTANEOUS EMISSION	0	0	0	0	0	0	0	
T1203	T2-18 DO YOU USE OR REFER TO STIMULATED EMISSION	0	0	0	0	0	0	0	
T1204	T2-19 DO YOU USE OR REFER TO COHERENCE OR INCOHERENCE	0	0	0	0	0	0	0	
T1205	T2-20 DO YOU USE OR REFER TO INVERSION LEVEL	0	0	0	0	0	0	0	
T1206	T2-21 DO YOU USE OR REFER TO MONOCHROMATIC	0	0	0	0	0	0	0	
T1207	T2-22 DO YOU WORK WITH ACTIVE MATERIALS	0	0	0	0	0	0	0	
T1208	T2-23 DO YOU WORK WITH PUMPING SOURCES	0	0	0	0	0	0	0	
T1209	T2-24 DO YOU WORK WITH FULL SILVERED (100% REFLECTIVE) MIRRORS	0	0	0	0	0	0	0	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK	SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
T1210 T2-25 DO YOU WORK WITH HALF SILVERED (92% REFLECTIVE) MIRRORS	0	0	0	0	0	0	0	
T1211 T2-26 DO YOU WORK WITH HELICAL FLASHTUBES	0	0	0	0	0	0	0	
T1212 T2-27 DO YOU WORK WITH RUBY	0	0	0	0	0	0	0	
T1213 T2-28 DO YOU WORK WITH HELIUM-NEON	0	0	0	0	0	0	0	
T1214 T2-29 DO YOU WORK WITH HELIUM-XENON	0	0	0	0	0	0	0	
T1215 T2-30 DO YOU WORK WITH XENON	0	0	0	0	0	0	0	
T1216 T2-31 DO YOU WORK WITH CESIUM-HELIUM	0	0	0	0	0	0	0	
T1217 T2-32 DO YOU WORK WITH ARGON	0	0	0	0	0	0	0	
T1218 T2-33 DO YOU WORK WITH NEODYMIUM IN GLASS	0	0	0	0	0	0	0	
T1219 T2-34 DO YOU WORK WITH GALLIUM ARSENIDE	0	0	0	0	0	0	0	
T1220 T3-01 IN YOUR PRESENT JOB DO YOU WORK WITH DISPLAY TUBES, SUCH AS DIRECT VIEW STORAGE (DVST) OR MULTIPLE MODE STORAGE TUBES (MMST)	4	0	0	0	6	0	5	
T1221 T3-02 DO YOU INSPECT DVST OR MMST	2	0	0	0	3	0	5	
T1222 T3-03 DO YOU CLEAN DVST OR MMST	2	0	0	0	3	0	5	DISPLAY TUBES
T1223 T3-04 DO YOU ADJUST OR CALIBRATE DVST OR MMST	0	0	0	0	0	0	0	
T1224 T3-05 DO YOU OPERATE SYSTEMS THAT CONTAIN DVST OR MMST	0	0	0	0	0	0	0	
T1225 T3-06 DO YOU TROUBLESHOOT DVST OR MMST CIRCUITS	0	0	0	0	0	0	0	
T1226 T3-07 DO YOU REMOVE OR REPLACE DVST OR MMST TUBES FROM MAJOR ASSEMBLIES OR UNITS	2	0	0	0	3	0	5	
T1227 T3-08 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF DVST	0	0	0	0	0	0	0	
T1228 T3-09 DO YOU PERFORM TASKS THAT MAKE IT NECESSARY TO NAME THE VARIOUS ELEMENTS OF MMST	0	0	0	0	0	0	0	
T1229 T3-10 DO YOU PERFORM TASKS ON FLOOD GUNS	0	0	0	0	0	0	0	
T1230 T3-11 DO YOU PERFORM TASKS ON WRITE GUNS	0	0	0	0	0	0	0	
T1231 T3-12 DO YOU PERFORM TASKS ON ATTACK GUNS	0	0	0	0	0	0	0	
T1232 T3-13 DO YOU PERFORM TASKS ON ERASE GUNS	0	0	0	0	0	0	0	
T1233 T3-14 DO YOU PERFORM TASKS ON STORAGE GRIDS	0	0	0	0	0	0	0	
U1234 U1-01 IN YOUR PRESENT JOB, DO YOU PERFORM ANY PROGRAMMING TASKS	39	31	0	38	42	0	50	
U1235 U1-02 DO YOU USE OR REFER TO DECIMAL SYSTEMS	14	19	0	23	12	0	5	
U1236 U1-03 DO YOU USE OR REFER TO PROGRAMS	33	31	0	38	33	0	40	PROGRAMMING
U1237 U1-04 DO YOU USE OR REFER TO HEXIDECIMAL SYSTEMS	2	0	0	0	3	0	0	
U1238 U1-05 DO YOU USE OR REFER TO 8-4-2-1 SYSTEMS	6	13	0	15	3	0	0	
U1239 U1-06 DO YOU USE OR REFER TO FOUR SYSTEMS	2	0	0	0	3	0	0	
U1240 U1-07 DO YOU USE OR REFER TO BINARY SYSTEMS	22	38	0	46	15	0	15	
U1241 U1-08 DO YOU USE OR REFER TO TIME-SHARING	6	0	0	0	9	0	5	
U1242 U1-09 DO YOU USE OR REFER TO DATA WORDS	35	25	0	31	39	0	50	
U1243 U1-10 DO YOU USE OR REFER TO ADDRESS WORDS	29	0	0	0	42	0	50	
U1244 U1-11 DO YOU USE OR REFER TO ADDRESS/SUBADDRESS	12	0	0	0	18	0	15	
U1245 U1-12 DO YOU USE OR REFER TO STEERING/INFORMATION	16	19	0	23	15	0	10	
U1246 U1-13 DO YOU USE OR REFER TO INFORMATION WORDS	20	19	0	23	21	0	20	
U1247 U1-14 DO YOU PERFORM TASKS ON SINGLE LEVEL PROGRAMMING	22	13	0	15	27	0	30	
U1248 U1-15 DO YOU PERFORM TASKS ON MULTI-LEVEL PROGRAMMING	10	13	0	15	9	0	5	

TASK GROUP SUMMARY
PERCENT MEMBERS PERFORMING

BY-TSK		SPC 026	SPC 027	SPC 028	SPC 029	SPC 037	SPC 038	SPC 039	
U1249	U1-16 DO YOU PERFORM TASKS ON INPUT DEVICES	20	25	0	31	18	0	15	
U1250	U1-17 DO YOU PERFORM TASKS ON STORAGE DEVICES	20	25	0	31	18	0	15	
U1251	U1-18 DO YOU PERFORM TASKS ON ARITHMETIC SECTIONS	14	19	0	23	12	0	10	
U1252	U1-19 DO YOU PERFORM TASKS ON CONTROL SECTIONS	18	13	0	15	21	0	20	
U1253	U1-20 DO YOU PERFORM TASKS ON OUTPUT DEVICES	18	13	0	15	21	0	20	
U1254	U1-21 DO YOU PERFORM TASKS ON POWER SUPPLIES	18	19	0	23	18	0	20	
U1255	U2-01 DO YOU USE DECIBELS TO EXPRESS AMPLIFICATION AND ATTENUATION	10	6	33	0	12	0	10	
U1256	U2-02 DO YOU USE LOGARITHMS TO COMPUTE OUTPUT POWER IN DECIBELS	6	6	33	0	6	33	5	DB AND POWER RATIOS
U1257	U2-03 DO YOU USE LOGARITHMS TO COMPUTE ATTENUATION IN DECIBELS	6	6	33	0	6	33	5	
U1258	U2-04 DUMMY TASK TO IDENTIFY INCUMBENTS WHO PERFORMED NO TASKS	0	0	0	0	0	0	0	

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MISSILE SYSTEMS MAINTENANCE SPECIALIST AFSC 31651/1F/1P.(U)
SEP 77 T J O'CONNOR, H G LAWRENCE

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Teaching Methods
Training

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report summarizes the results of the administration of the Electronic Principles Inventory to airmen assigned as Missile Systems Maintenance Specialists (AFSC 36151/1F/1P). The report gives a detailed listing of the technical tasks and knowledge needed to perform the jobs within the specialty or career ladder.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

This specialty has the following functions:

Performs maintenance of missile and Remotely Piloted Vehicle (RPV) guidance and control systems, subsystems, and components; operates, calibrates, and maintains related test, monitoring, and checkout equipment; ~~performs malfunction analysis, and repairs, maintains, related test, monitoring, and checkout equipment;~~ performs malfunction analysis, and repairs, maintains modifies, inspects, and services missile and RPV systems, subsystems, and ground operating equipment to component level; performs field maintenance on electronic test, launch control, checkout, and related ground support equipment used by missile activities; and assembles and disassembles missiles and RPVs.